TECHNOMORPHOSIS:

COMMUNICATION , CONTENT AND ARCHITECTURE

by

Imrana Inayatullah

N.D(Arch)
National College of Arts
Lahore , Pakistan
1982

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
MASTER OF SCIENCE IN ARCHITECTURE STUDIES
at the
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 1986

Signature of Author _____

Imrana Inayatullah
Department of Architecture
Feb 15, 1986

Certified by _____

Dennis Frenchman
Lecturer, Director Environmental Design Program
Thesis Supervisor

Accepted by _____

Professor Julian Beinart
Chairman, Departmental Committee for Graduate Students

TECHNOMORPHOSIS:
Communication, Content and Architecture

by
Imrana Inayatullah

Submitted to the Department of Architecture on February 15, 1986
in partial fulfillment of the requirements for the Degree of
Master of Science in Architecture Studies

ABSTRACT

To interpret the meaning of the built environment which surrounds us today, we must confront a plurality of architectural movements, each with its own built-in value system, iconographic references and select languages. The notion of a modern or 'contemporary' mode of expression has been made obsolete. We are faced instead with parallel, competing schools of thought, often contradictory in intention and outcome.
It is my hypothesis that it is possible to isolate an undercurrent in architectural theory and design, which I call "Technomorphosis", that explains the crucial aspects of our present condition. It is my belief that the basis for Technomorphosis, is not rooted in recent history, but rather, can be traced back to speculative, avant-garde and revolutionary movements emerging during the period of the Industrial Revolution and the years immediately following it.
To uncover the nature and limits of this undercurrent, I have studied three parallel scales of environment in which this development is taking place:

. The building, as an object with a distinct meaning.

. Open Space, as the bridge between groups of buildings, and the means of clarifying their relationships.

. The City, as a complex entity which deals with the relationship of objects and spaces on a comprehensive scale.

Essentially, these investigations have led me to three propositions, which become central to the idea of Technomorphosis. These can be summarized as follows:

. A new meaning and expression has emerged in contemporary architecture which no longer relies on the traditional static relationship between the understanding of an idea and its visual image. Instead, there is an evolving mode of expression which is essentially dynamic and fragmentary, it embodies an interactive relationship between viewer and object.

. This new current of architectural expression actually looks back to utopic ideas emerging in the late 19th and early 20th centuries, there exists a 'time-lag' between idea and its physical manifestation in the built environment.

. This particular current is on the leading edge of a fundamental metamorphosis now taking place in the nature of the built environment. It is based on the increasing impact and dominance of technology and the information revolution in which communication and content become the basis for form.

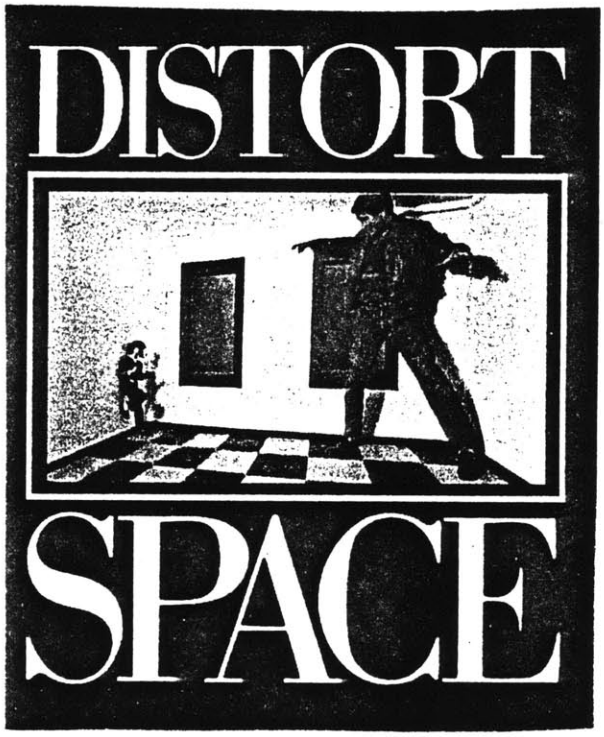
It is my belief that these propositions reveal the essential forces behind the environmental metamorphosis taking place today, an **"architectural technomorphosis".**

Thesis Supervisor: Dennis Frenchman
Title: Director, Environmental Design Program, Lecturer

Very special thanks to Bill Porter for his invaluable guidance, to Patrick Purcell for the constant encouragement and advice, and most especially to Dennis, who is not only a brilliant advisor, but a wonderful human being, thanks for your understanding and constant support.

To John and Daphne, who are more than just good friends, thanks for listening, brainstorming and 'always' being there. To Vikram, Joe, Ash, Shabs, Neelum Ting and Ian for putting up with me. Very special thanks to Jambi, Ruma, Jill' and Pete, this would surely not have been possible without your love and understanding. To Arif, for his patience and endless love, and for being exactly what a brother should be.


ENTER


DISTORT
SPACE

ABSTRACT 3

CONTENTS 7

INTRODUCTION 17

PROLOGUE 20

PART I 31

THE BUILDING

Idea and Image 32
a. Distinction Between Understanding and Expression
b. Changing Signs and Symbols in Built Form

Technology and Image 37
a. Reconstruction of Space and Form
b. The Changing Role of the Architect
c. The Machine as an Object

The Emergence of Dynamism as a Concept 41
a. The Russian and Italian influence: Malevich and Marinetti
b. The Shift from Static to Dynamic

Zaha Hadid: Architecture as Energetic Spatial Fluidity 51
a. Towards an Experiential Realm

Daniel Libeskind: Fragmentation as a Trend 70
a. Freedom of Spatial and Tectonic Functions
b. Architecture of the Spirit

Norman Foster: Backward Looking Utopias 83
a. Hong Kong Shanghai Bank
b. Dichotomy in Architectural Expression

Jean Nouvel: Reconstructing Principles for Thought in Architecture 93
a. Arab World Institute: The Building as Content
b. Tete La Defense [Communications Building] Competition
c. Technology as Form Giver
d. Exploration of Forma as a Series of Juxtapositions

Renzo Piano: Piece by Piece 108
a. Redefining the Relationship between Technology and the Artifact
b. World Theatre: Split Building, New York/Genoa

PART II 113

OPEN SPACE

Space and Object: Changing Nature of the Park 115
a. The Classical Idea of the Garden/Open Space

b. Pioneers of Ecological Landscape Design
c. Dis-integration of Visual Form
d. Landscape as Synthesizer between the Universal and the Particular

Passive to Inter-active 124
a. Transition from the Landscape Park to the Urban Park
b. Conflict Between the Scale of the Machine and the Human Beings

What is the 20th Century Park?. 125
a. Surrealism, Dadaism, and Constructivism
b. Mythmaking
c. Duchamp and Picabia
d. Merging Fantasy and Reality
e. Automation and the Information Revolution

Contradictory Forces Ruling 20th Century Architectural Thought 134
a. Questioning the Nature of Architectural Signs
b. Sequence by Sequence
c. Changing Nature of Architectural Experience
d. Magritte & Foucault: Displacement
e. De Chirico: Architecture Without Reason

Bernard Tschumi: Defamiliarization/Deconstruction 149
a. Procedure - Device - Content
b. Injection: Programmatic Use of Content
c. Meaning Derived from the 'Order of Experience'

Frame by Frame 179
a. Frame: as an Object of Distortion
b. Transformation of Scale, Material and Use
c. Order and Chaos: Analogy between Reason and Fiction
d. Autonomy of Metaphysical Freedom
e. Narratives: Linear, De-constructed, Dissociated

Replacing Fetishistic Architecture 181
a. Charting New Directions in Concept and Expression
b. Kiesler and Tschumi

Parc La Villette
Tschumi: Programmatic Explosion 182
a. The Site as a Magnetic Field
b. Folies: Lines of Motion, Points of Intensity
c. The Grid: Series of Punctuated Anchorage Points
d. Pathlines: Sequences of Randomness and Unpredictability
e. La Promenade Cinematique

Game of Sequences: A Contemporary Mood 197
a. Super-impositions
b. Motion - Object - Event
c. Possible Scenarios : Construction of Fields
d. Slogan and Image

Opening the Possibilities 205
a. Merging of Art, Cinema, Architecture
b. Active Spectators: Content - Action - Motion

Parc La Villette 209
Rem Koolhaas & OMA: Conceiving Territories as Grids
a. Re-interpretation of the Grid
b. Birth of Computerized Fields
c. Site: Place of artificial Mirages
d. Structure Differentiated from Experience

Exploiting the Metropolitan Condition 214
a. Open Space: Defined by the City
b. Density Without Architecture

Universal Exposition 217
Rem Koolhaas & OMA: Information Replaces the Constructed Mass
a. Pavillions become tools rather than buildings
b. Simulation as a Model for Projection
c. The Machine as a Tool to Express Architectural Form

PART III 224

RE-THINKING THE CITY 225

The Changing Nature of the City
Information Systems as Activity Generators

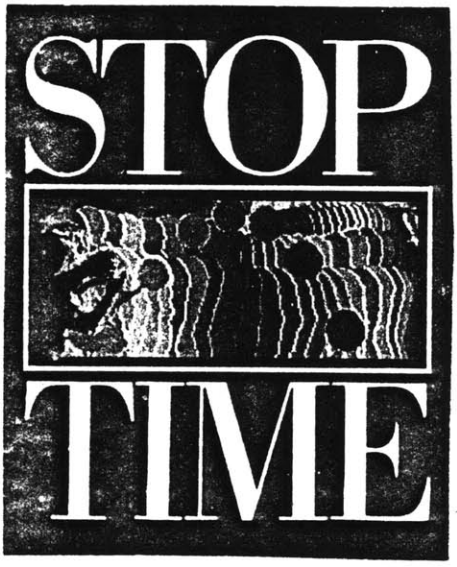
Kawasaki City: The Classic Cliche 227
a. A Backward Looking Utopia : City of the Future
b. The City an International Information Center

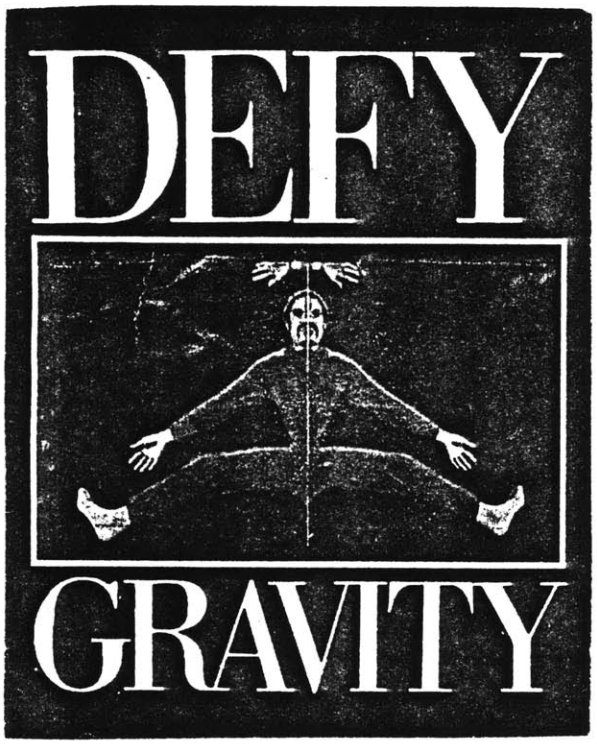
New York: The City as an 'Object of Revision' 245
a. Re-defining the Grid
b. Layering
c. Super-imposition
d. Retro-fitting'

Telluride, Colorado: Generic Centrelessness 260
a. Head for the Hills
b. Reality Reconstructed

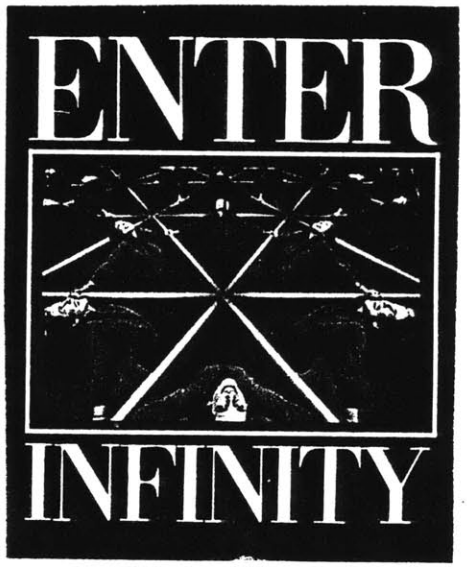
CONCLUSION 268

BIBLIOGRAPHY 290

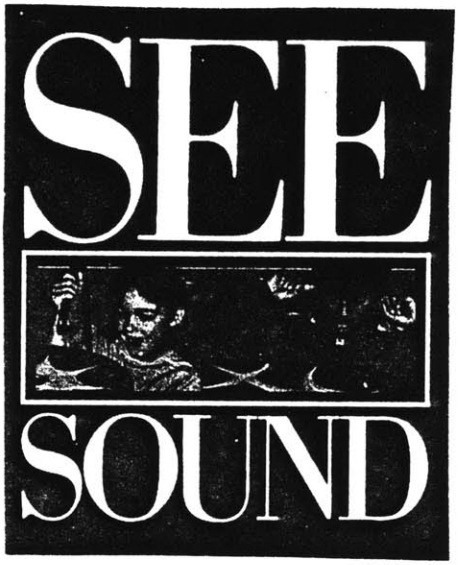

STOP
TIME

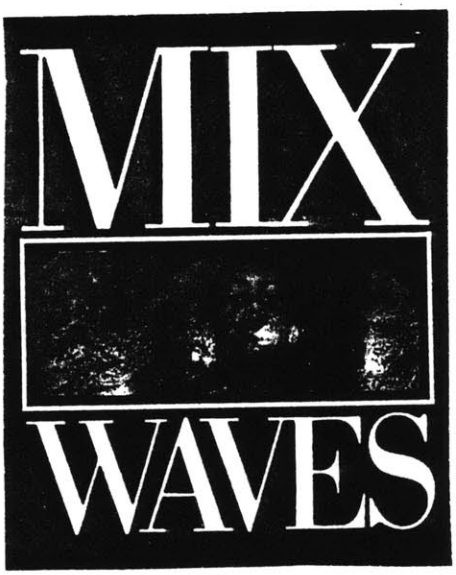

DEFY
GRAVITY

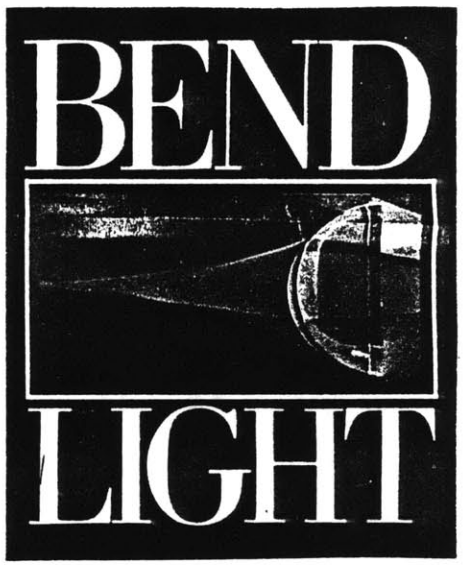

SPLIT
IMAGES

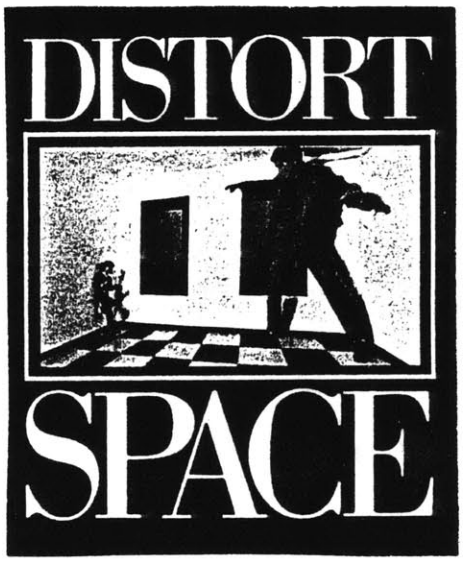

ENTER
INFINITY


COLOR
SHADOWS


SEE
SOUND


MIX
WAVES


BEND
LIGHT


DISTORT
SPACE

TRANSFORMATIONS OF THOUGHT AND FORM

INTRODUCTION

There is no longer a dominant style or mode of expression against which we can measure the progress of our times. Modes of building which once could be attributed to a particular geographical region or to a historic moment in time have been freed of their traditional contexts by sophisticated and flexible technological systems. These systems provide, among other things, instantaneous communication and cheap, efficient means of reproduction. These are the indispensible tools of flexibility. The characteristic flexibility with which we can render all modes of expression in building 'equal' also tends to obscure meaning. As a result, much of this expression bears little resemblance to the revolutionary changes which are taking place in our society and our environment.

Nevertheless, it is possible to isolate certain currents present in the theory, design and production of built environments which relfect both the inovation and progress of this era and the crisis of uncertainty stemming from the speed at which it is taking place. The current of thought being explored is not one which has been explicitly identified to date and its boundaries are inevitably nebulous. My investigation is therefore speculative and open-ended in nature. It seeks to uncover and make sense of the common roots of some of the fragmentary movements of our current architectural scene and demonstrate their broader implications in light of the on-going technological revolution.

This investigation, for the purpose of clarity is divided into three parts. Each part is connected with the other through a series of recurring themes, resulting in a different expression and understanding for each part.

The first part deals mainly with an analysis of the cause behind changes of 'image', in the 'building' as an object within a larger network ie; the city and open space. It argues that the current style of post-modernism, does not represent a new turning point, but is the manifestation of outdated ideals. More significant is the impact of Russian Constructivist and Italian Futurist Manifestoes and notions, and their influence on contemporary expressions in built form, which is today more dynamic and laden with content than ever before. It shall also refer to the transference of ideas based in other disciplines. The trend traced here has to do with the impact of science and technology and the resulting change in understanding, thereby giving 'the object' a new vocabulary.

Part two, traces briefly the evolution of the 21st century park. It deals with the idea of 'open space', as one that has changed from 'a place to go away', from the city, to one which is an integral part of the urban fabric. Activity and inter-action are an important feature for the success of the latter condition. It suggests an analogy between 'Surrealism' and the current state of the art in the expression of open public space. It also deals with emerging concepts today that are fragmented and highly influenced by communication/information technologies. This fragmentation is a 'new mode of existence' in that it is a mix of theory and method. The formulation of a series of dispersed and contradictory theoretical fragments. In a world full of conflict and contradiction, it examines the causes for a changing vocabulary in architectural understanding ie; the site as a magnetic field of information, and its impact on our notions of space in the future.

The third part deals with the changing nature of the 'city' itself, which is a composite of object and space. It explores the differences of attitude towards

the relationship between technology and 'architecture', where technology is taken as an external force acting on a cultural concept that has become professionally institutionalized, and exists as a synthesis of varying elements that determine a transformation at a larger scale. It focuses mainly on the theme of communications and technology, and tries to establish it as a predominant detrminant for change. A change that is taking us into the world of the 5th generation, and 'The Intelligent City'.

In the final analysis, the debate is a controversial one for it has not been tested fully. It is an understanding of the phenomenon of hermeneutics, where words acquire a different meaning from their original and intended purpose, and thereafter expression in the built environment. Thoughts and images organize themselves through new means of production. The radically changed milieu of architecture is inextricably linked to the fate of abstraction.

PROLOGUE

Building, can be defined both as the object and process of architecture. The noun 'building' and the verb 'to build', are interrelated by a synthesis of product and production. As a point of departure, it is important to understand the relationship beween the object and the procedures suggested by the object. There is a duality in the object which implies both action and a state of being in architecture. Every step of the process is as important as the final outcome. In this duality lies the core of the investigation to attempt to reveal the essence within the process of making and to reveal within the object, the inherent structure of the process.

A work of art, whether a painting, a poem, a piece of music, or a building, according to Martin Heidegger[1] is to be seen primarily as 'thing' in its most fundamental sense. The object of this thesis is to explore the sources, causes and preconditions of things. In this case, 'thing' is applied to buildings, man-made open spaces and cities in which they are placed.

Aristotle, was one of the first thinkers to make an attempt to understand and categorize the processes that our experience of the world presents to us. In "Physics, Book II", we find a full account of his doctrine of cause and effect. The causality principle is divided into four parts:

1. The Causa Materialis
2. The Causa Formalis
3. The Causa Finalis
4. The Causa Efficiens

---

[1] Martin Heidegger, *The Origin of the Works of Art, Basic Writings,* Harper & Row, N.Y. 1963, p.p. 209-245

These constitute the framework where *questions about the structure of substances* is investigated. This was one of the first historic models that referred to the inter-relationship between the object and the elements involved in the act of its creation.[1] The model was effectively derived from the context of man-made artifacts and extended to natural processes by metaphor.

It is the third cause, the 'Causa Finalis', that I am interested in exploring. It is responsible for the creation of the object and is the essential source in generating the 'thing'. While the 'Causa Finalis', could be considered as the purpose behind the generation of objects, it does not necessarily pre-determine or constrict what they will become. That which defines the shape of form, Aristotle called the 'Formal Cause'. Such distinguishes the finished object of architecture from any random accumulation of raw materials or any accidental aggregation of building parts. Therefore a building is not reduced to, *a priori,* a function of its material condition, but reflects its indebtedness to architecture as being the factor or element of formal identification.

The fourth cause, 'Causa Efficiens', is also called the 'moving cause'. By definition, it comprises the action by which the form is imposed on the relatively unformed matter for achieving a specific purpose. 'Making', in this sense extends beyond mere manufacturing and into the realm of bringing things into existence, ie; *into a state of being.* Therefore the efficient cause embraces both the maker and the art of the profession, the discipline of architecture which in itself constitutes the theory of knowledge within the field. Here exists an age old dichotomy in architectural practice and thought, that of establishing hierarchical relationships between ideas of form and function and their expression in the material world. This model can be transformed,

---

[1] Aristotle, *Physics Book II, The Philosophy of Aristotle,* A Mentor Book, N.Y. 1963, p.p. 209-245

either into a set of operational rules or into a self-referential system where elements derive meanings from themselves.

When applied to our understanding of the built world, Aristotle's Causality Principle becomes a useful reference in analysing the contradictions between ideas and their material manifestation in buildings, cities and man-made landscapes. Aristotle's doctrine is significant of the fact that the model of causality itself represents the undertaking to establish a specific order within man's system of thought and action. Using this as a basic reference, I will begin to analyse the dialectical nature of transformations in form and space. Through the investigation of selected architectural concepts and their contemporary expression, I will identify an emerging tension that represents a break with tradition. The term 'cause' has its etymological origin in the verb *cadere,* which means 'to fall' or that which brings it about that something turns out as a result in a certain way. This mode of making, involving a true course of reasoning is the base of the so-called traditional or 'Aristotelian' conception of technology.

The notion that there is a turning away from traditional forms of expression and a new synthesis of built form and meaning is of central concern. From this idea stems a series of connected propositions about a new form of architectural expression, one that I call "Technomorphosis".

At the basis of this concept is the view that technology is a human arrangement of knowledge and technics to serve and to make possible the accomplishment with an end in itself, but rather a means towards a determined end.[1] Underlying this is the distinction made by Aristotle between natural things and artificial, manmade objects.

---

[1] Webster. F. Hood, *The Aristotelian v. the Heideggerian Approach to the Problem of Technology,* The Free Press, N.Y. 1972, p. 347

Thus, within technology the maker gives form to matter obtained from nature, producing things from other things through action. therefore, technology is seen as being extrinsic in nature and instrumental to man in order to overcome his natural condition. Technology's position in relation to man is primarily external to him, detached from any values, a 'neutral' tool.

Today we have to acknowledge that technology as such cannot be isolated as a totally neutral operational device. It no longer makes sense to maintain that it is simply, an instrument which, for better or for worse, serves man. Also, the traditional conception of the relationships between nature and technology have become obsolete. The current general practice of architecture, has been transformed into a process of production without essential meaning, clearly defined aims, or reference to human values. Its interest is directed towards the material efficiency of design and construction. The process of architecture has been reduced to operational procedures following predetermined rules, which as variables of economical functions determine the mode of things and the way they are manufactured, which reveals itself in experimental contexts and not in naive observation conjoined with contemplation.[1] Nature has lost its formed character and has become elementary and abstract, capable of receiving a multiplicity of forms. Aristotle's distinction between matter and form, artificial and natural things, is therefore not applicable. Most importantly 'Nature' is no longer understood as being originally formed. Herein lies the core of a new understanding of technology as part of nature and part of of the existential structure of man's being. Rather than standing in some kind of external relation, as in the traditional conception, technology is inherently connected to the human condition. In other words, technology is seen as from within.

---

[1] Ibid. p. 359

Martin Heidegger states clearly that only by overcoming a purely instrumental and operational definition of technology will man be able to undertake the task towards the attempt to reveal what the essence of technology might be.[1] Only in this attempt of understanding will the fundamental modes within the relationship of 'thing' and 'process' find clarification.

The purpose of this discourse, is in part to search for a better understanding of this new conception of technology. The growing tension between man-made objects and their meanings has resulted in conceptual and visual fragmentation. This fragmentation accompanies a broad spectrum of shifts in built form. In certain instances, the expression of objects in the man-made environment has moved from static and heavy to dynamic and light, not only in form but also in function. The fine boundary between reality and fantasy has been demolished and we are faced with a world full of ephemeral juxtapositions.

Much of the recent architecture that has been viewed as 'futuristic', and 'innovative' can be identified as nothing more than delayed materialization of utopic propositions from the turn of the century. The formal expressions of architecture contained in the art and writing of the avant-garde movements of the early 20th century dealt mainly with a space-time synthesis. At that time, there was an apparent time lag between proposition and realization, building technology and management, and communication systems had not caught up with the visionaries' environmental projections. Paradoxically, now that our technological capacity has expanded to a point where the challenging visions from the beginning of the century can be tested quite fully, mainstream architectural thought and expression is in a state of crisis and confusion.

---

[1] Martin Heidegger, *The Question Concerning Technology,* Harper & Row, N.Y. 1977, p.p. 284-317

The dilemma of this paradox, will be examined primarily through the formal analysis of work which reflects an evolving perception of fantasy and reality. The analysis will distinguish between external logic systems operating on this changing perception and uncover a chain of thought stemming from the early fantasies which, in my view, still persist in the midst of the current confusion.

We live in an era of sharp juxtapositions and reduced hierarchical differentiation, where spatial experience and communication are dynamic processes which seem perpetually off balance. The linguistic representation of architecture has become just as important as the actual act of building and experiencing something. A building, public space or city must have its own story to distinguish it from others. More than ever before, architectural theory is a necessary tool through which we can understand the constantly shifting vocabulary and expression of physical environments.

> "To think is more fascinating than to know, but not more than to perceive visually"

There is much to be learnt from the above paradox.

I would like at this point to refer to Foucault's notions of

discontinuity, reversal

and a re-assesment of the meaning of representation. In his book, 'The Archaeology of Knowledge', he focuses on historic moments of rupture and discovery. The essential elements of what there is to say, to prove, is found in conditions of discontinuity.

Foucault tried to understand elements by displacing concepts, for him the value of the structure of a discourse was in reversal and discontinuity. His 'Archaeology of Knowledge', is therefore really a discovery of events. Foucault is invaluable as a reference, for through his works he breaks the

habits of minds. His theory explicitly employs the transgression of familiar limits.

Fantasy and Reality

It incorporates the notion of using history for the 'discovery of facts', and by saying this I would like to turn to my hypothesis to suggest that these 'facts', were born long ago, but were expressed in a different realm of consciousness, and essentially remained within the sphere of 'fantasy'. By 'fantasy', I mean the germination or the expression of an idea whether it be in thought or on paper, by 'fantasy', I also mean that this idea never materialised simultaneous to its development.

And so in reality it only existed in the minds of those who created it, and those who read or heard about it, it could even exist as a strong theoretical base to understand the nature of architecture in society. I feel that as a process of history, of thought, understanding and expression, there has been, in the past one hundred years, a sharp dichotomy.

This dichootomy, I find has manifested itself in the form of a 'Time-Lag', a time-lag between understanding and expression, that which was 'fantasy' is today reality in the essential spirit of that 'fantasy'. There arises with this suggestion a notion of 'juxtaposition in space and time'. There is and has always been this inherent duality between these two elements.

To further clarify this distinction, it is interesting to note traditional definitions of fantasy.

FANTASY
a. the free play of creative imagination

b. a creation of the imaginative faculty whether expressed or merely conceived

c. as a fanciful design or invention

d. a chimerical or fantastic notion

e. imaginative fiction strange settings

f. the power or process of creating, especially unrealistic or improbable mental images in response to psychological need

REALISM

a. concern for fact or reality and rejection of the impractical or visionary

b. the conception that an abstract tern names an independant and unitary reality

c. The conception that objects of sense perception or cognition exist independantly of the mind

d. fidelity in art and literature to nature or to real life or to real life and to accurate representation without idealization

REALITY

a. a real event, entity, or state of affairs

b. something that is neither derivative or dependant, but exists necessarily

c. the totality of real things or events

The above necessitates an emphasis on understanding *breaks and ruptures.* In an architectural sense, these words take on new meanings , expecially when juxtaposed with the idea of fantasy and reality. I feel that one necessitates the other, for each would be meaningless on its own. The nature of these definitions needs to be reviewed, since the two terms often overlap, in both understanding and expression. And so I would like to suggest that there is an almost distinct symbiosis between the two, and that we have reached a point in time where it is almost impossible to make a distinction between them.

The present state of knowledge, cannot reject categories of origin. The importance remains for the same words used in a different context. The past configurations of a particular discipline act as a 'grid', for analysing events to their origin and progress on to define it in contemporary form. And so we progress on to the idea of two distinct 'realms':

a. the realm of thought - fantasy

b. the material realm - reality

I however, do not believe in the absense of causality. It is not valid to assume that one need not refer to anything, the world is not made that way. New forms are conceived through a metamorphosis or transformation of already existing elements. The process of creation has therefore more to do with 'cause and effect' and intelligibility. We see 'things', notions, ideas, being used in a non-traditional syntax.

These then become devices for 'subverting', or converting man , who is ultimately reduced to a series of configurations resulting in 'fragmented discourses'. The norms of reason are difficult to define. Liberation from this dichotomy is to 'accept', fragmentation as a new mode of thought and behaviour, where illusion and reality blend together. Within this conflict, one tries to trace a series of nodes to figure out why certain things remain disparate. In many ways this analysis of knowledge becomes the birth of philosophical thought in architecture.

Reality remains, waiting to be de-constructed, and eventually transformed. Architectural values have collapsed, useless formalism has compensated the lack of reflection, as a result:

intentions = good

result = disconcerting

With modernism, there was the creation of a whole new world, motivated by the following interjections:

a. The extraordinary development of technology

b. New resources, energy

c. Accelerations in communication

these destroyed the mental, social, and environmental structures for which the architect built. As architects we cannot afford, to neglect developments in cinema, painting, literature and philosophy, all available forms representing space. We must learn to derive meaning from the *'order of experience'* rather than the order of composition.

PART I
THE BUILDING

THE BUILDING

Object: Idea and Image

a. Distinction between Understanding and Expression

b. Changing Signs and Symbols in Built Form

There is a distinction between the imaginative and the literal experience of architecture. The experience of architecture, because it reflects an underlying act of imaginative attention, belongs to the active and not the passive power of the mind.

It is through the search for 'meaning' in buildings that the judgement of taste acquires its full elaboration, and it is this 'meaning' which the observer must be brought to understand. As soon as we examine the matter, we discover that the 'imaginative transformation of experience' and the 'exercise of taste' are the same. Critical discrimination requires that 'transformation', just as 'imagination' requires the search for a cultivation of the 'appropriate' in all its forms.

And so a search for the appropriate is also the search for significance in buildings.

This significance should be of a kind that understanding it, and experiencing its expression, are single components of an inextricable act. Semiology, the general science of signs propounds a notion of meaning that assimilates language, gesture and art, it offers to unravel human phenomenon by bringing it into the realm of an all inclusive theory of significance. Semiology essentially starts from the analogy between language and other activities and uses. In its pursuit of meaning, all the various 'methods', that are available to decipher them as intellectual basis pre–supposes the following: that all human behavior can be seen as expressive, revealing thoughts, feelings, interactions etc.,

that modes of human expression may be thought of as also having a certain 'structure', one that is exhibited in language.

According to Barthes,[1] a sentence is a system composed of 'syntagms'. A 'syntagm' is a class of terms which may replace each other without destroying the system.

A grammar is necessary to show how the meanings of the parts determine the meaning of the whole John Stuart Mills suggests the importance of the terms 'denotation' and 'connotation', roughly a word denotes some object or class of objects and connotes some idea or meaning, so that in some way every architectural form denotes a function and at the same time connotes an idea.

denotes - object

connotes - an idea or meaning

In the case of a building, the idea of 'denotation' is litle more than an intellectual blank - a word without a concept.

Signs and symbols in architecture, especially expressed in individual buildings are in a state of abstract confusion today. There is a vast over lapping and 'over-laying' of ideas and images. Architectural conventions and rules are becoming more and more difficult to associate with or define. The important thing is not obedience to the rules, but the manifest bearing and transformation of these rules on anything that we can understand as architectural significance. Representation and Expression may also be thought of as modes of symbolism. It is only through the above two that we can begin to understand more about their inherent notion in a building. To answer the question of when immitation becomes representation, one can assume that when

---

[1] Roland Barthes, *'Elements de Semiologie'*, [translated A. Lavers and Smith as 'Elements of Semiology', London 1967, pp. 27-62].

knowledge of the immitated thing becomes an essential part of "architectural understanding," it can be termed 'representational'.

For representation being the expression of thought contains and essentially becomes a 'narrative' element and elaboration of a story or description, representational 'art' requires the 'development' of thought.

There is a long tradition of thought in architecture that sees the relation between whole and part as providing the essence of architectural success. Alberti considered the beaufty of a building lay in the "harmony of parts", fitted together in such a way that nothing could be added, diminished or altered, but for the worse.'

Contemporary understanding and expression in architecture has come a long way, from this rigid and static definition given by Alberti.[1] Today, architecture is much more flexible and at the same time, full of conflict and tension. Nietzche very aptly described this situation, and said on the notion of content and form:

> "One is an artist, at the cost of regarding, that which all non-artists call 'form' as content, as the matter itself. With that, of course, one belongs to an inverted world, for henceforth content becomes something merely formal, our life included".

In the course of the last two hundered years, architecture has been increasingly treated not only as a formal process, but also a form of production. Architects rarely describe their projects in terms of economic or technical interest alone, but choose rather a language replete with reference to historical and social meaning, to symbols and styles.

---

[1] L. B. Alberti, *'De Re Aedificatoria'*, [trans. Bartolo and Leoni, London 1726, as 'Ten Books of Architecture', reprinted, ed. J. Rykwert, London 1965] Book VI, Ch. 2.

I would argue that the general feeling of uncertainty integral to the contemporary debate about architecture, its relation to technology and to its own specific principles, challenged by the current mode of historicism and aestheticism illustrates a paradox of meaning and interpretation. The role of an architect today is changing. It is going through a phase where we find a strong re-construction of thought processes that evidently change existing myths and criteria for architectural expression.

Form, is a difficult and elusive term. On the one hand it partakes of sensible reality and may appear as its very essence, but it is also an invisible concept. *The oscillation between the real and the possible, the imaginative and the imaginary, the concrete and the abstract, is what makes form such a powerful and at the same time, difficult notion.* Form, as a notion had its origin in the Aristotelian understanding of creativity (poiesis) in terms of matter and form. Matter (hyle) is everything that can be formed

Matter = Form

Form = Idea

Idea = Icon

While form was originally seen as an idea (eidos), which in the sphere of visual reality appears as Icon (eikon). The attempt to reduce the diversity and richness of the visual world into 'visual form' took place only in the late 18th century. Until then a whole spectrum of terms such as paradigma, typos, symbol, allegory, emblem, impresa, schema, figura, were used to grasp the meaning that was later given to the simple notion of form itself. All the above terms participate in one way or another in the formative power of an invisible reality.

One of the crucial elements in the development of this physiognomy of representation particularly in architecture, was a tendency toward idealization. The most important influences were modern science and technology. There was a belief shared by both artists and scientists, during this critical period of transition, that the true order of reality was mathematical and mathematical forms were therefore the most adequate representations of the universe. Newton and Kepler's cosmologies were formulated as models of the universe in an attempt to represent and, through the representation, to participate in the hidden universal order.

On the one hand, mathematical representation was still part of the traditional cosmology, on the other hand it became a foundation of a new kind of representation known as modern science. The possibility of eliminating all remaining references to traditional cosmology emerged in the late 18th century writings of Lagrange and Laplace. Similar results were achieved in the works of the so-called revolutionary architects, but especially in the work of J.N.C. Durand. It is generally accepted that Durand was the first to successfully accept and lay the foundations of an architectural order without direct reference to existing tradition, referring instead to a state of architectural autonomy. The set of images he represents, drawn carefully to the same scale, were only a point of departure and reference for the real task ie: the analysis of comparitive material and the definition of primary elements and principles, that would allow him to create a universal 'mecanisme de la composition'. This new method of design was based on the assumption that history had already run its course and come to a stand still by the 18th century. It could therefore be transformed into a new form of understanding.

The second was a belief that the new order could be based on the formal principles situated outside history. How then was it possible to create a system that was

self-referential, but at the same time could be used as a framework of historical criticism and design. This was a dilemma that was never quite understood or absorbed by the continuing success of the natural sciences and thus became a new and sophisticated form of self-deception. Its origins can be traced back to the 17th century, which was a period of divided representation.

In the light of all previous understanding, the distance between the divine and the infinite was reduced to the hypothetical identity of 'everything that happens in the world' and its mathematical representation.

Technology and Image

It is only in this century that we are beginning to realize the nature, as well as the depth and scale of this deception. In order to understand how it was possible to replace the complexity of symbolic mediation with the relative simplicity of an experiment, we must analyze the nature of the experiment itself.

The pure anatomy of science is a fiction which any genuine scientist would dismiss. The complete elimination of sense impressions is impossible, since we cannot shut off the acknowledged source of all our experience. The use of science and technology in architecture must represent something, otherwise it is an empty construction. What technology represents is determined by the nature of scientific knowledge, and also by hermeneutical conditions, ie; the cultural context in which it is received and understood. Science is only a partial representation of reality, which means that it takes into account only that which is susceptible to mathematical understanding and that it is only an instrumental representation of reality and thus belongs to the essence of modern technology. This has led to the contemporary crisis of meaning and the general crisis in contemporary culture.

The elevation of technology to a universal instrumentality coincides with the growing influence of information and communications on contemporary architecture. What is important to understand is that the nature of this technology has radically changed.

Durand's method to create a universal method of design had its influence, and in that sense was relatively successful. The importance of Durand's method was the fact that he realized the importance of moving away from historical precedents and accepted notions of tradition. What was however naive and limited in this understanding was his belief that historical time could be arrested and encapsulated in a theory that would have permanent validity.

Our current architectural crisis can be best expressed as a strong eclecticism. There is much to be said about the influence of information and technological systems, finding a new language of expression. That certain buildings would not be possible without the existence of a highly developed and rapidly advancing 'information age'. Circumstances today have changed. The influence of doctrines based on scientific ideas has been displaced by the more powerful influence of technology and knowledge. This transformation has led us to a new expression which I call "Techno-morphosis".

Aesthetic appreciation of technology is one of the most critical dimensions in the modern architectural debate. During the last one hundred years aesthetics has assumed a defensive role in the context of modern science and technology. This gives rise to misunderstandings and conflict, since science, technology and aesthetics can essentially co-exist. It is a different mind-set, a new mode of perception and understanding.

Looking at the changing roles and models of society, the impact of information technologies on the nature of the re-construction of space and form is crucial. It leads to a change not only in concept and image but also in the assumed norms of

human behaviour. In the larger picture of dialectics and discourse, it is an important transition point.

The status of representing technology is still in conflict, since much of the essence of architecture does not, and is not necessarily material in form and substance. The embodiment of this new synthesis in architecture is both material and spiritual.

The Machine as Object

Machines have been used throughout history as an extension of handicraft, for saving labor and performing new operations within the framework of the handicraft order. With the advent of power production the 'machine' acquired new values. The changed conditions brought about the idea of assimilating the machine into a new mode interpreted as "the machine aesthetic".

Mumford made the following assumption in his "Technics and Civilization":

> 'Face to face with these new machines and instruments, with their hard surfaces, their rigid volumes, their stark shapes, a fresh kind of perception and pleasure emerges: to interpret this order becomes one of the new tasks of the arts".

The real problem at this point was not to adapt machine production to the aesthetic standards of handicrafts, but to think out new aesthetic standards for new methods of production.

Having moved to an age of repetition, Walter Gropius stated that "Standardization is not an impediment to the development of civilisation, but on the contrary one of its immediate prerequisites". (The new architecture and the Bauhaus) This further led to the discovery of the abstract aesthetic virtues of machines.

The Problem of Assimilation

What is known as the industrial revolution, was a material application of that world of scientific order that was defined by the school of natural philosophy, made possible by the mechanical discoveries that concentration on the factual aspects of discovering led to. The machine instead of being an extension of his own faculties becomes for man, a mechanical equivalent of nature, a physical manifestation of the world of order and scientific thinking, giving him a sense, in inventing power machinery by himself and contributing to the orderliness of the universe.

Neither the intellectual renaissance of the seventeenth century, nor the industrial revolution of the 19th will be complete until there is a re–synthesis bringing about a new coordination of the arts, manufacturing, architecture and planning as the basis of a contemporary system. More than ever before, architecture is now a multi–disciplinary field.

Conformity with a new set of conditions, with a new world of experience means the adoption of a new aesthetic. Simple surfaces of a nature appropriate to mechanical processes take the place of applied ornament. The machine liberated the craftsman from the routine of production and transferred his qualities from 'the process to the product.'

The interpretation of the machine applied to structure and facade expressed itself in inherent contradiction. It is best exemplified in the Beauborg Center in Paris. Where the machine aesthetic was interpreted by its architects Richard Rogers and Renzo Piano, as a manifestation of handicraft, that each piece of constructed element was defined as a work of art rather than a mechanical system.

The study of machines as objects and an analysis into their aesthetics has added much to the designers vocabulary. Notable schools that contributed to this are the cubists

and constructivists. In architecture theatrical effects of mass, weight and so on, give way to effects of poise and lightness. Actual structural elimination is the contemporary virtue instead of one that imposes structural solidity.

The machine itself is a product undergoing a constant process of humanization and that the designer's primary aim is to civilize this technology and use it as a tool and so a means to an end.

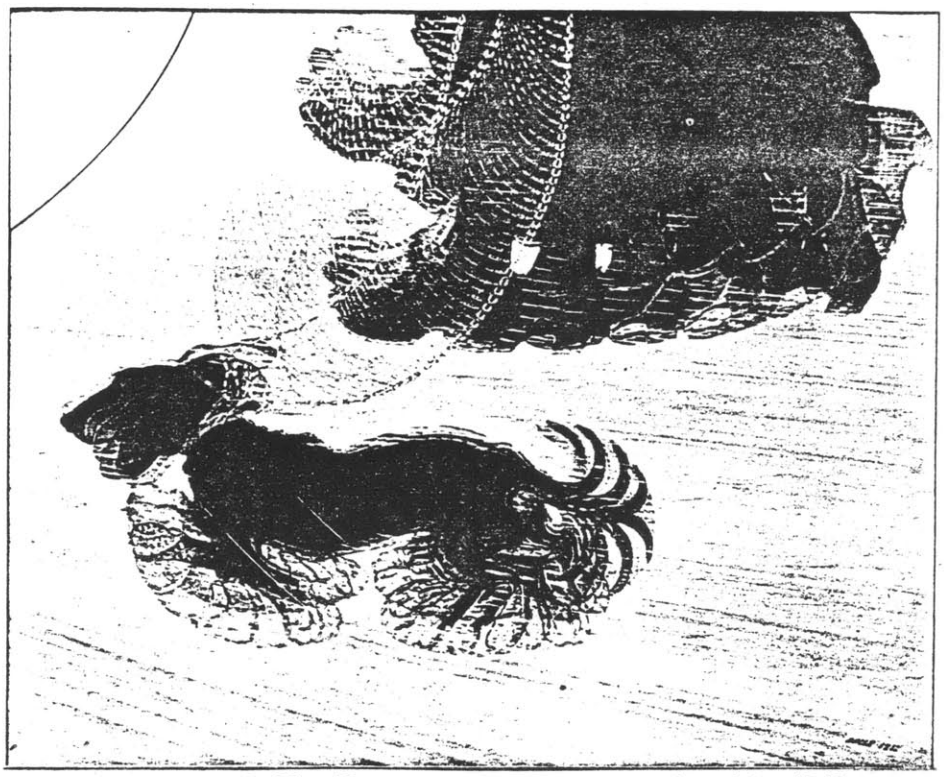
"Our capacity to go beyond the machine" to quote Mumford, rests upon our power to assimilate it. Until we have absorbed the lessons of objectivity, impersonality, neutrality, the lessons of the mechanical realm, we cannot go further in our development toward the more richly organic, the more profoundly human.

Creating an Experiential Environment:
The Emergence of Dynamism as a Concept

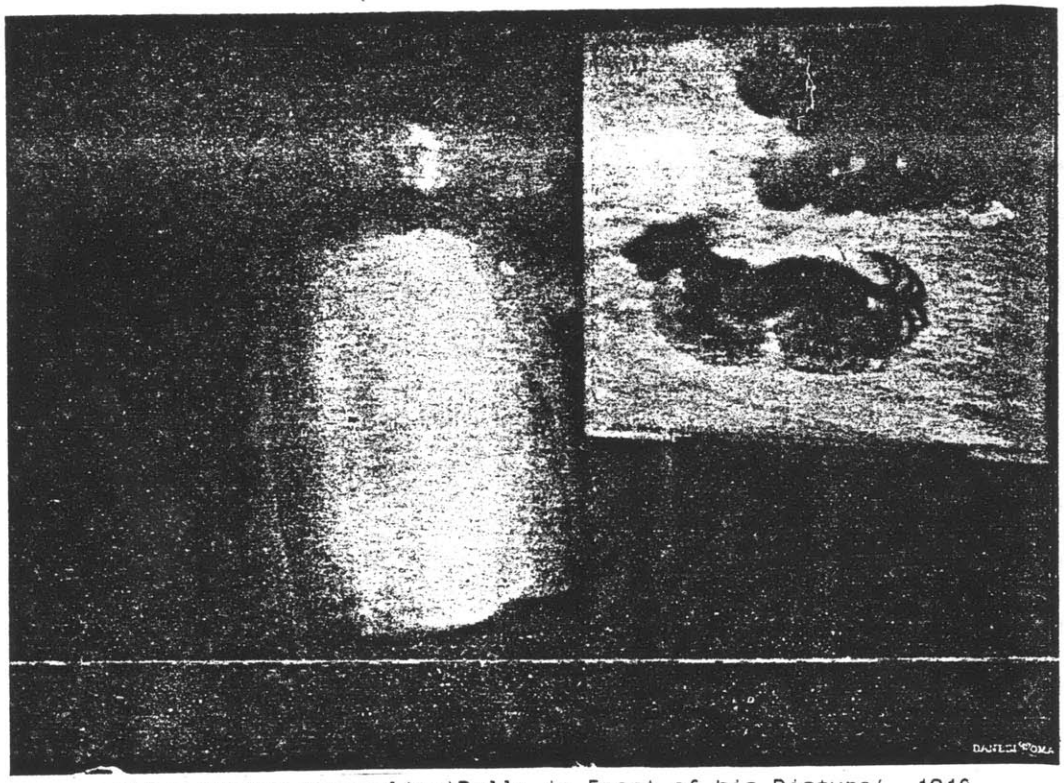
To emancipate architecture, from the fetters of historicism was a task of the late 18th and early 19th centuries, the architect considered a genius, was expected to acheive nothing less than that. The spirit in the begining of the 19th century was one where the true nature of concepts in language extended beyond the realm of architectural orthodoxy, and into the world of attitudes about space, geometry and sensuality. A new architectural sensibility began to develop at the begining of the 20th century.

With the Futurists for the first time, sculptural simultaneity, analogous to pictorial simultaneity, appeared in art. Marinetti, as leader of the movement, put such tremendous energy into expanding boundaries of what could be termed culture beyond all recognition. 'Dynamism', in painting and sculpture is, therefore, an evolutional concept of a plastic reality. It is the reflection of a sensibility which conceives the world as an infinite prolonging of an evolutionary species. For Marinetti,

Fig. 1



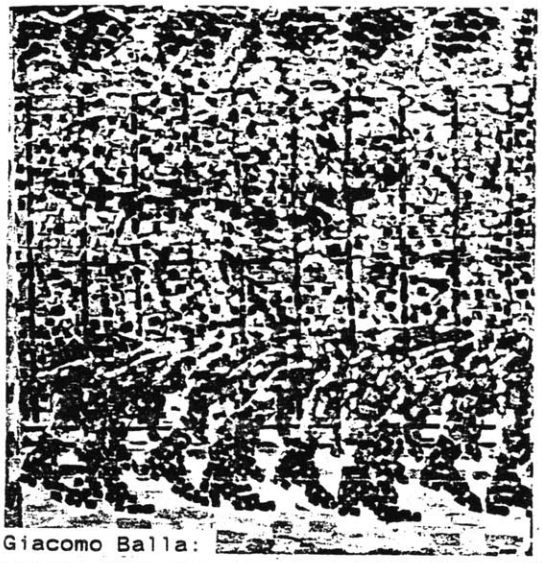
Giacomo Balla: 'Dynamism of a Dog on a Leash', 1912



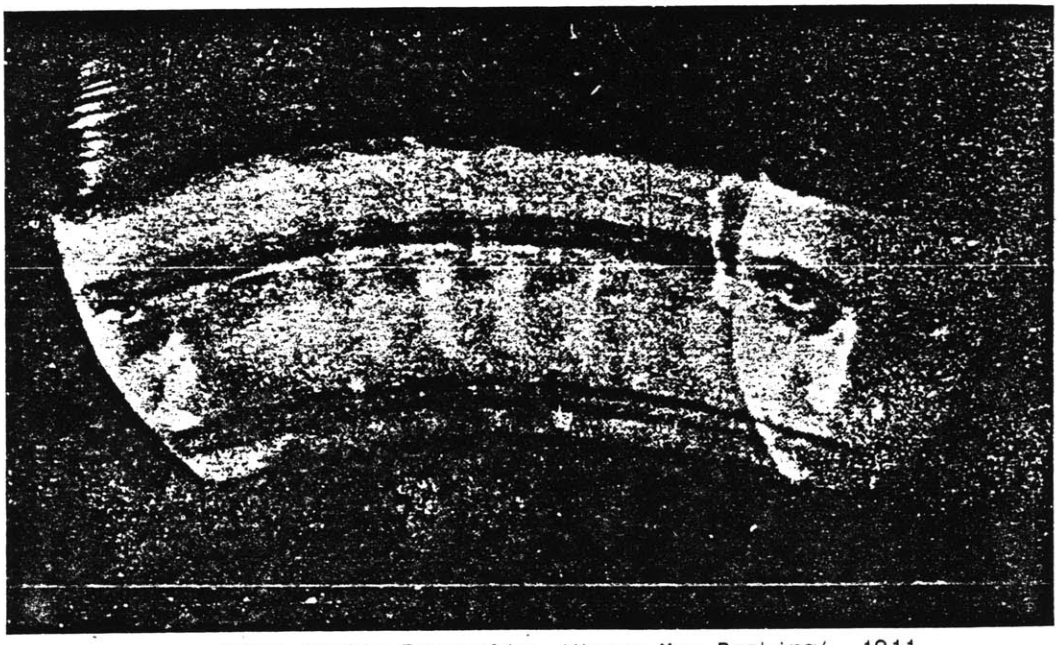
Anton Giulio Bragaglia: 'Balla in Front of his Picture', 1912

Fig. 2

E.J. Marey: 'Chronophotograph', 1884



Giacomo Balla:
'Little Girl Running on a Balcony', 1912



Anton Giulio Bragaglia: 'Young Man Rocking', 1911

'Absolute motion + dynamic motion = Dynamism', [Figs. 1 & 2]
absolute motion then becomes a dynamic law inherent in the object. The plastic construction of the object must here concern itself with the motion which an object has within itself.

As a result, dread of the old and the known became a significant and widespread phenomenon. Love of the new and unexpected was the new slogan. The new mechanical sense was a fusion of instinct with the efficiency of the machine. Acceleration of life to a swifter pace, physical, intellectual, and sentimental stretched between contrary magnetisms, creating multiple and simultaneous awareness in a single individual. Much of this finds an expression in contemporary architecture.

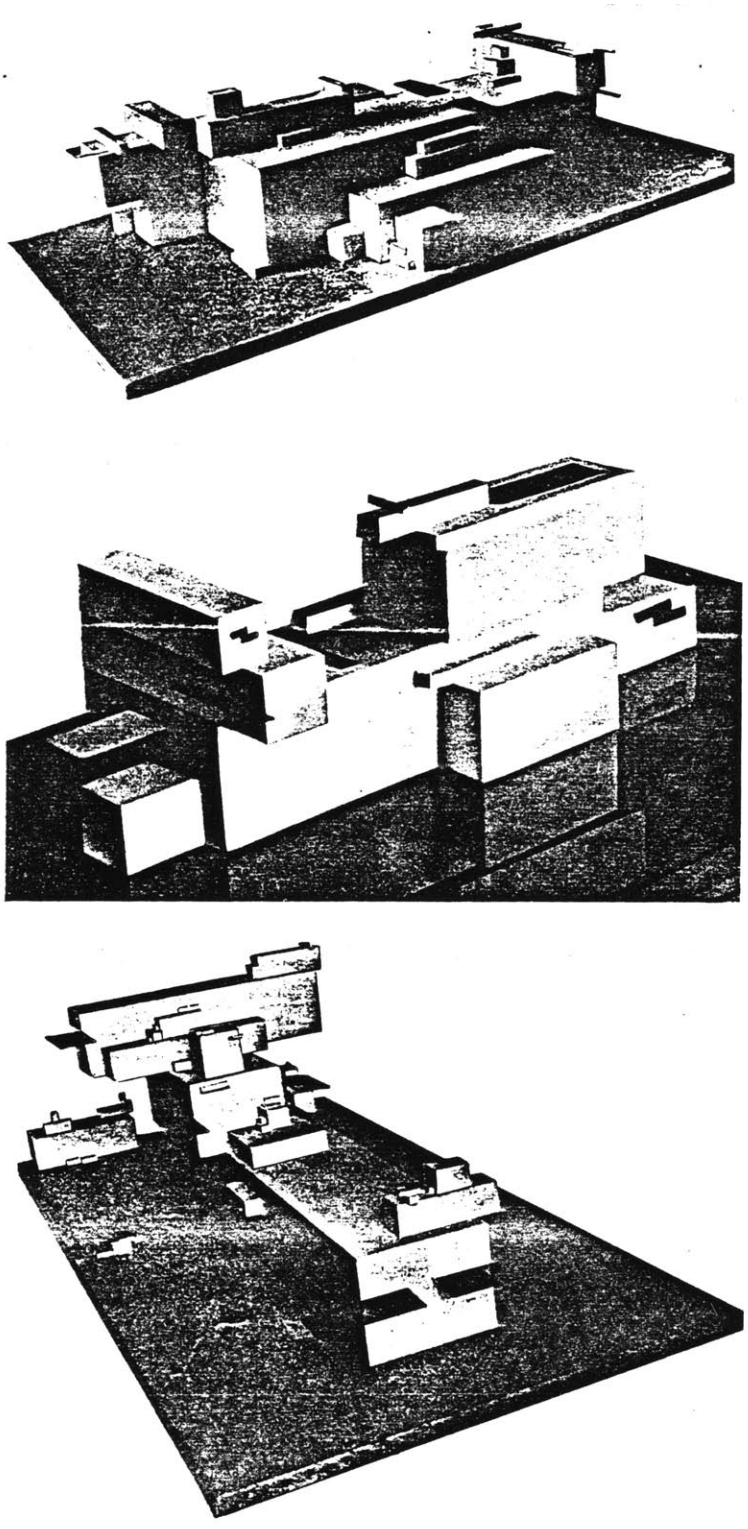
Marinetti, was among the first to see that vast changes in man's mentality were imminent, and he was certainly the first to set his 'man multiplied by the motor', in a world that sounds very much like the 'Global Village' of the 1960's. The clarity and excitement of this vision of a transformed world is laid out in his extraordinary manifesto of 1913, the essence of which is 'destruction of syntax, imagination without strings, words in freedom'. Marinetti talks of turning everything upside down and proclaimed the "absolute and complete abolition of finite lines and the contained statute, lets split open our figures and place the environment inside them'. THe idea was to bring the static line to life in the dynamic force-line. In 1913, Marinetti says in the Futurist Manifesto:[1]

> "Futurism is grounded in the complete renewal of human sensibility brought about by the great discoveries of science. Those people who

---

[1] F. T. Marinetti, *'Initial Manifesto of Futurism'.* English translation in the catalogue of the exhibition of the works of Italian Futurist, Sackville Gallery, London 1912.

Fig. 3



Kazimir Malevich: 'Suprematist Architecton' 1924-26

> toaday make use of the telegraph, the telephoene, the phonograph, the train, the bicycle, the aeroplane, the cinema, do not realize that these various means of communication, transportation and information have a decisive influence".

What I find of great significance is the notion or the series of ideas that this movement triggered off, which was then *insistence on the relationship between the sophisticated precision of geometry and the sensual frenzy of experience.* All this in itself acted as a major force and announced a new sensitivity, it was a gradual change in thought dictated by images of technology. It was a gradual change in thought, dictated by of technology. As Marinetti says, "The manifesto expresses our frenetic passion for modern life, rapid, noisy - gay - fragmented - elegant - escaping, Futurist."

In his film script about painting and architecture [1927], Malevich made adistinction between two aspects of architectural work,

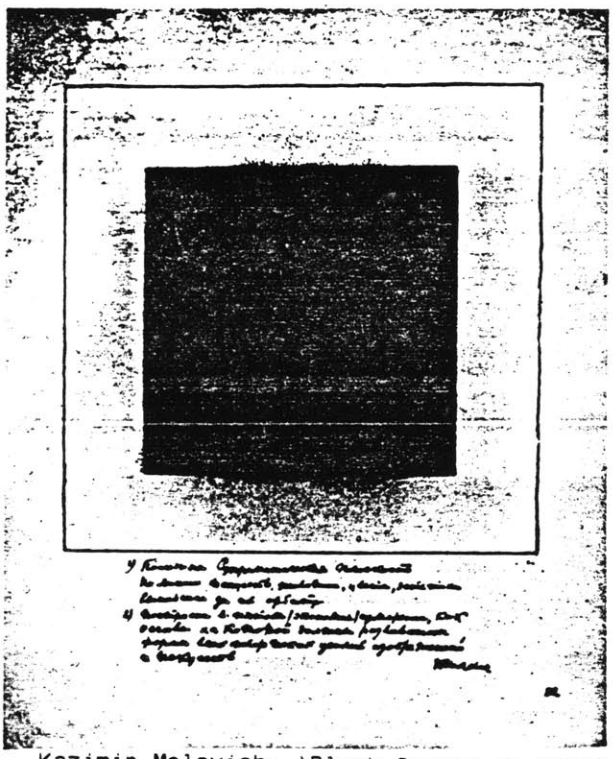
a. architecture as a problem

b. architecture as life

he personally preferred to work on architecture as a problem, which he saw as an experimental research into the elaboration of a new *architectonic system, the Suprematist order* [Fig. 3]. The Architectons, defined by Malevich, as architectural formulas according to which shape can be imparted to architectural structures, were of two kinds, the *horizontal and the vertical. Architectons can be regarded as singular architectural sculptural models which embody the laws of 'dynamic symmetry'* , in the Suprematist order. It mainly achieves its effect by the spatial dynamism of its shapes.

Horizontal Architectons may be said to crystallize movement parallel to the earth's surface, the vertical ones similarly embody upward and downward movement. These shapes represent a radical transition from the old architectonics of self-enclosed, static

Fig. 4



Kazimir Malevich: 'Black Square on White
[page from 'Concerning new Systems in Art', 1919

volumes to the use of volumes that *attract and repel each other, impenetrate and intersect.* The aesthetic effect of Architectons is achieved less by the geometric volumes themselves than by their spatial inter-connections, their junctions and sub-ordinations, and the way in which they relate to each other. Even though the components, just as in pictorial suprematism, are of elementary simplicity, their spatial combinations are extremely complex owing to the diversity of contrasts in the proportions, scale, orientation and even colour which arises in the new dynamic harmony.

OPPOSITIONS

During the last few generations decisive changes have taken place, which have expressed themselves in changing attitudes in science and philosophy, as well as art and architecture. According to Riegl's theory these changes may well have social and spiritual implications. Belief in reason became a new faith. Reason and science were regarded as the key to all of life's secrets. The materialistic aspect of science became a substitute for metaphysics.

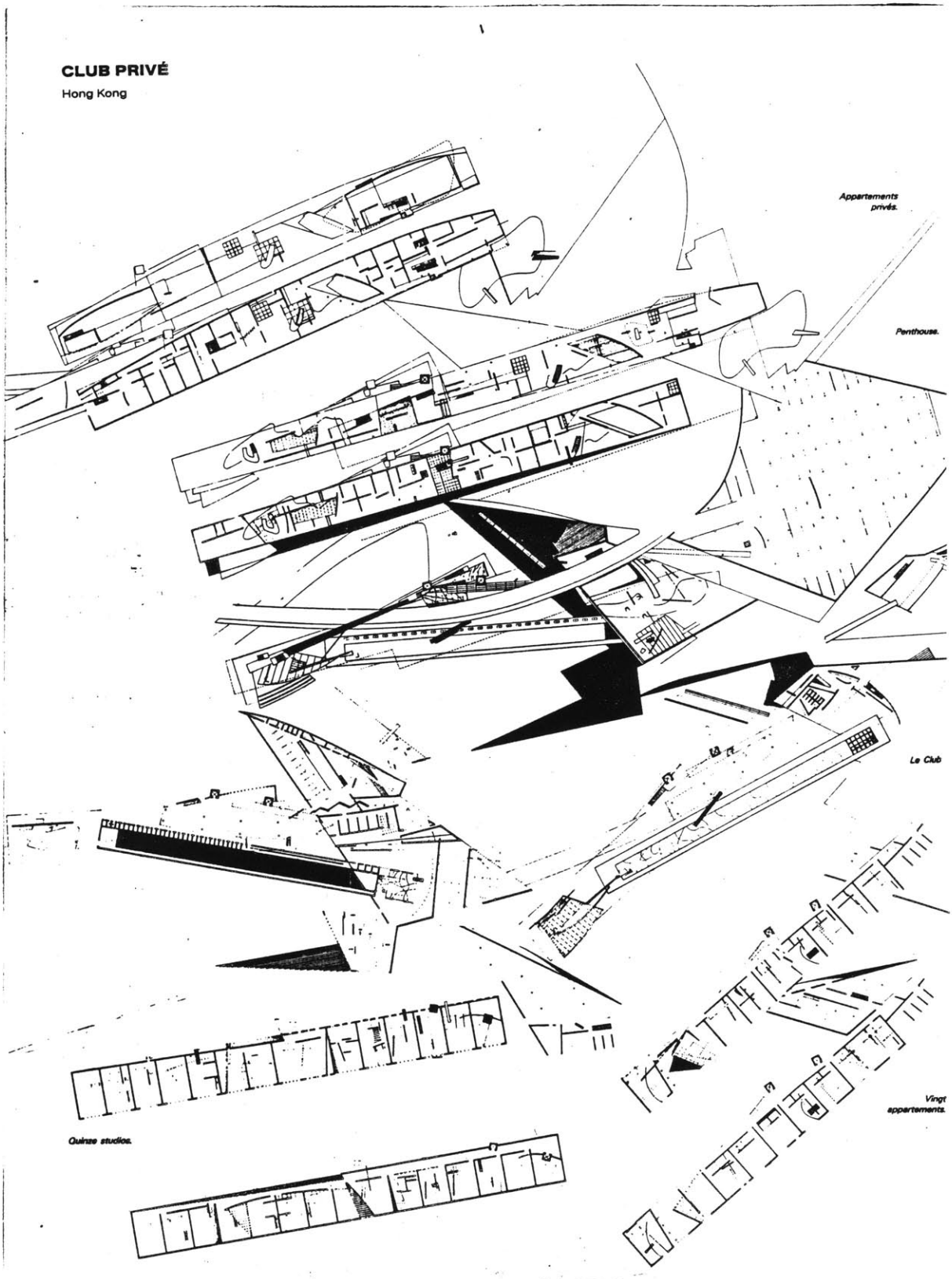
Changes in painting from Impressionism to Suprematism may well be considered the result of a spiritual re-birth, we clearly see the emergence of a new concept in art. Malevich accomplished the highest level of concentration in the painting "Black Square on White" [Fig. 4]. It stands not as an end but a begining.

At this point in time, it is worth mentioning that a network of relations both imaginary and concrete took place between Russia and America. For the Russians, America, which was regarded as a model by certain 19th century reformers, came to represent the epitome of modern industrial life, as much for the social and economic

Fig. 5

Zaha Hadid Site Plan Private Club, Hong Kong 'The Peak', 1983

Fig. 6



Zaha Hadid: 'Private Club', Hong Kong

programmes of the revolutionaries as for the achievements of the literary and artistic avant-garde, and especially cinema.

During the early years of the 20th century, the emergence of the machine aesthetic in art, literature and cinema was paralleled by a growing interest in the organisation of industrial labor. The Bolshevik leaders fascination had begun long before they were required to ensure the continuity of commercial links between the two countries.

I bring up this point to explore, through evidence substantiated in the three parts of this thesis, the idea of a series of linkages that were prevalent not only in Russia and America but also spreading to Europe. The parts, in detail will look at trends in modern architecture today that are leaning towards an expression in concept and physical form, is reminiscent of several ideas that seem to have germinated in the early 1900's but never became a reality due to certain constraints.

Zaha Hadid: Architecture as Energetic Spatial Fluidity

Taking a leap forward into today, one finds the above, a more than apt description of work that is being done by Zaha Hadid. It brings to mind vividly not only most of her work, but specifically her drawings for a *private club,* in Hong Kong. *The Peak Competition,* as it was called was won by *Zaha Hadid* [*Figs. 5 & 6*]. It was selected from several entries by world renowned architects. The fact that an architecture such as hers, which is a new facet of modernism, is more an extension of existing forms of architectural representation, is accepted, leads to speculation. It seems almost to emcompass what Corbu said about architecture;

> "It seems to me that architecture is radiated by a building and does not clothe it, that it is an aroma, rather than a drapery: an integral part of it and not a shell."

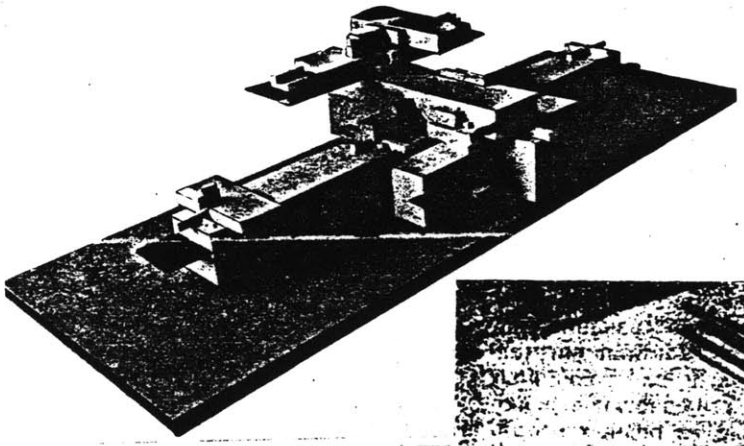
The simplified geometrical components of Architectons seem obviously pre-destined for industrial application. On the other hand their combination in any one architecton is

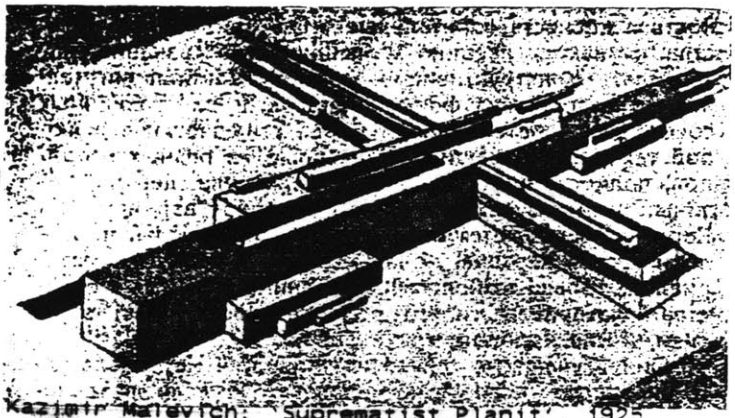
Fig. 7

Nikolai Suetin: 'Analytical Drawing', 1926
Inscribed: Diagram of two Symmetries
Linear - Solid
Greeks: static symmetry
Suprematism: dynamic symmetry

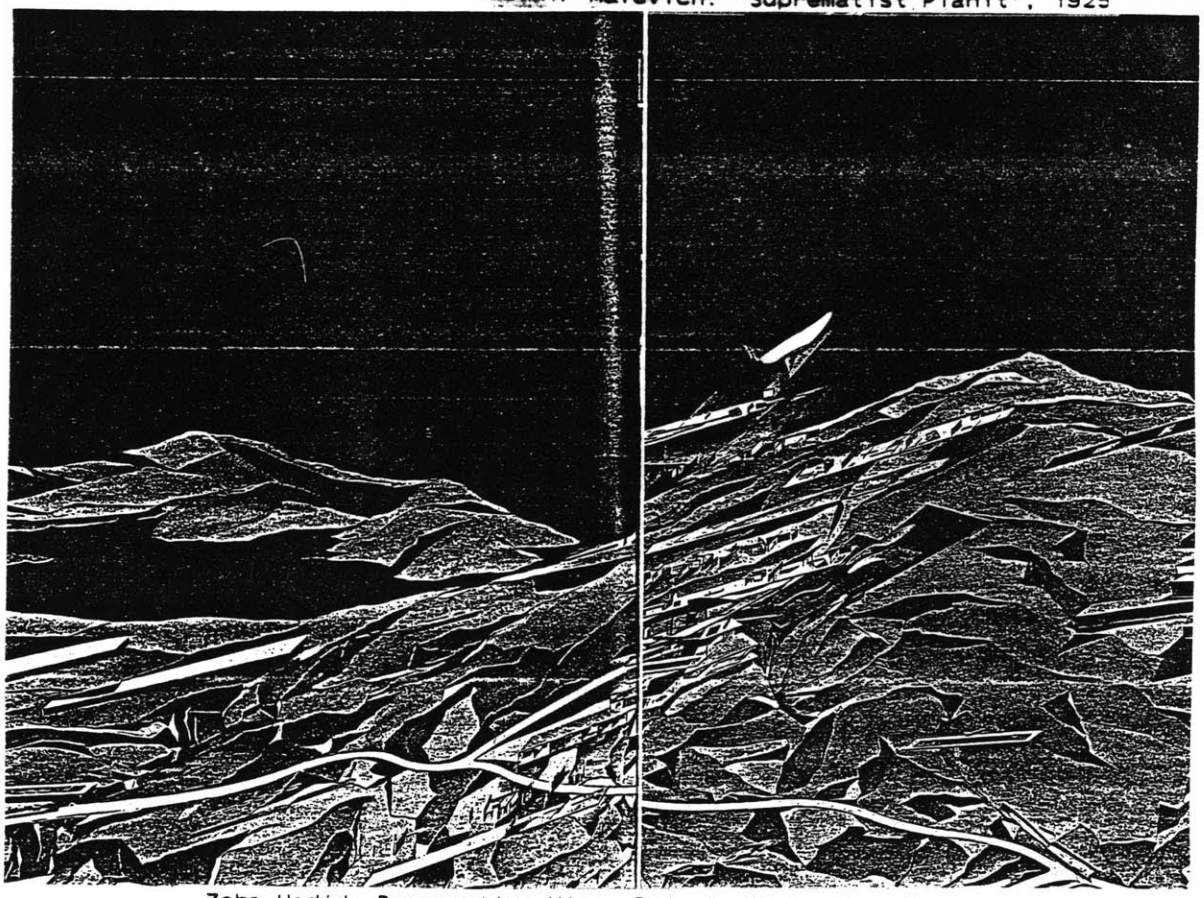
Fig.8

Kazimir Malevich:'Dynamic Suprematist Architecton', 1924-26



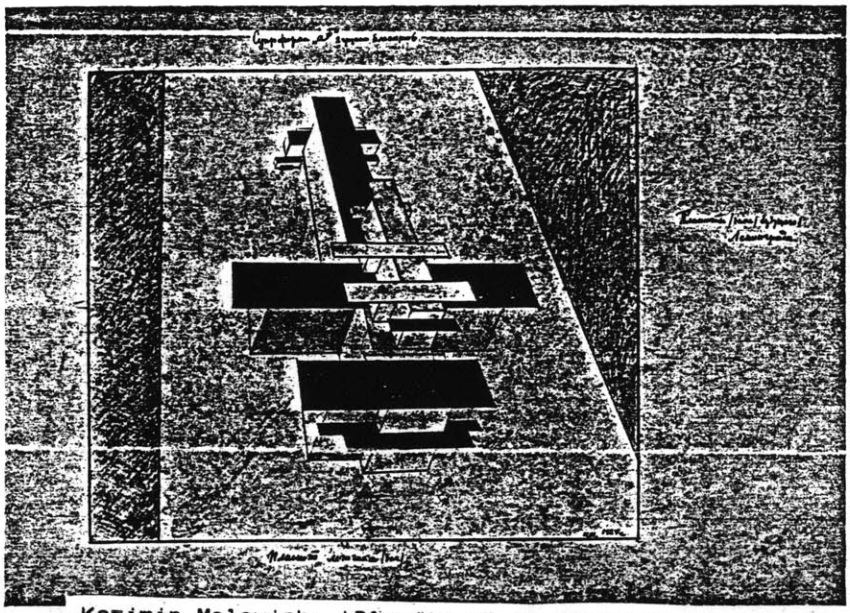


Kazimir Malevich: 'Suprematist Planit', 1925

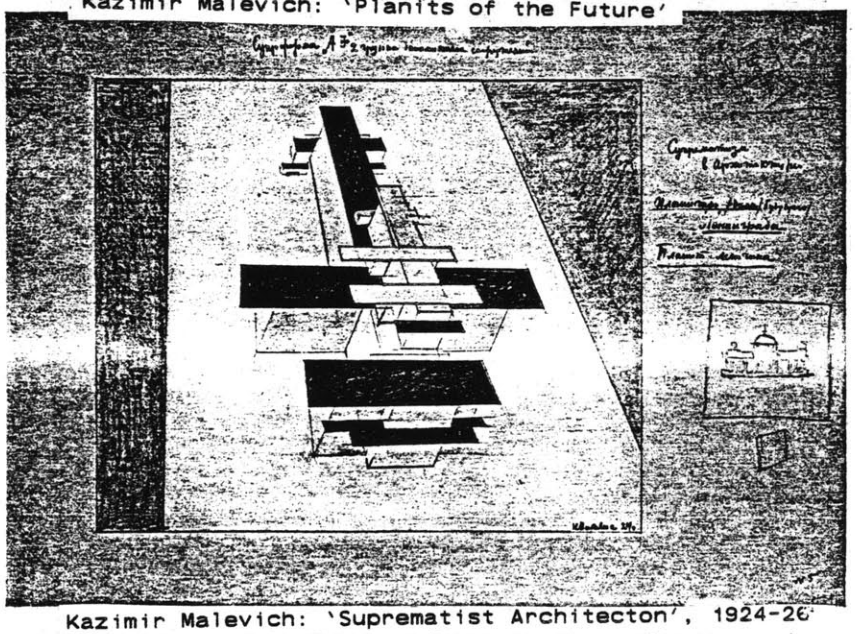


Zaha Hadid: Perspective View, Private Club, Hong Kong

Fig. 9

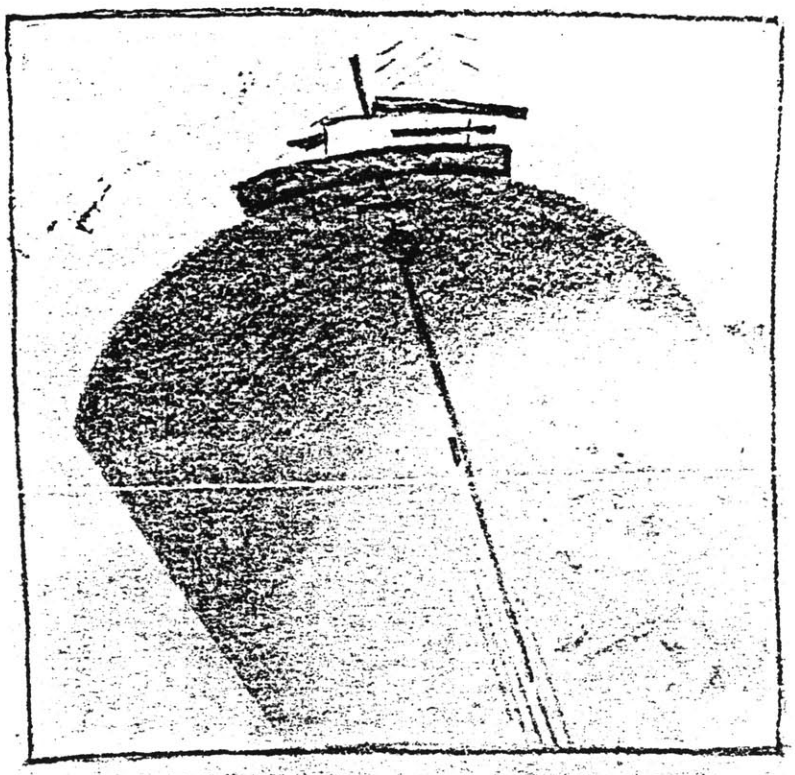


Kazimir Malevich: 'Planits of the Future'

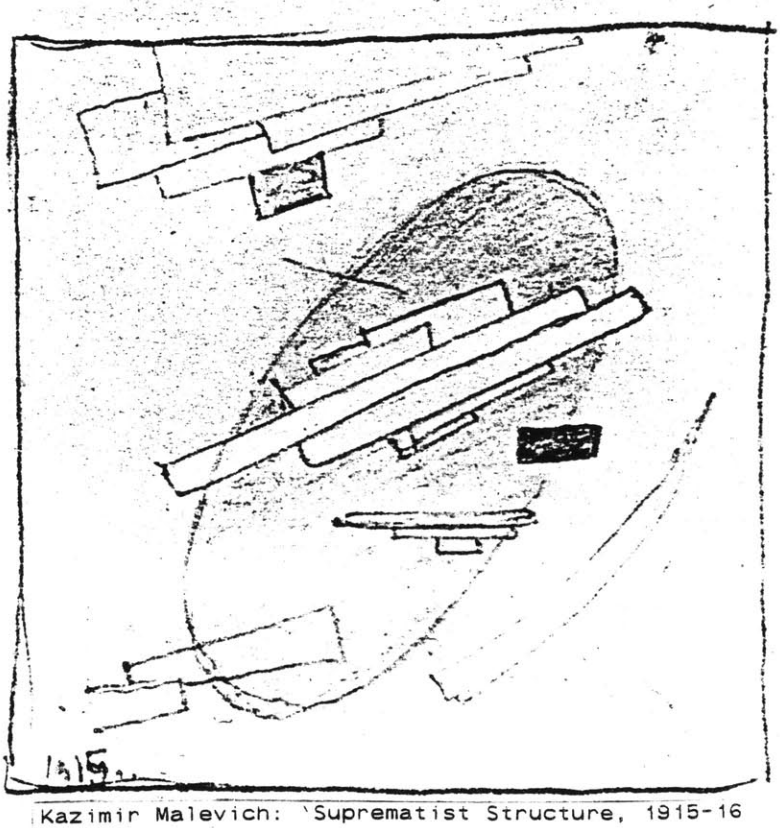


Kazimir Malevich: 'Suprematist Architecton', 1924-26

Fig. 10

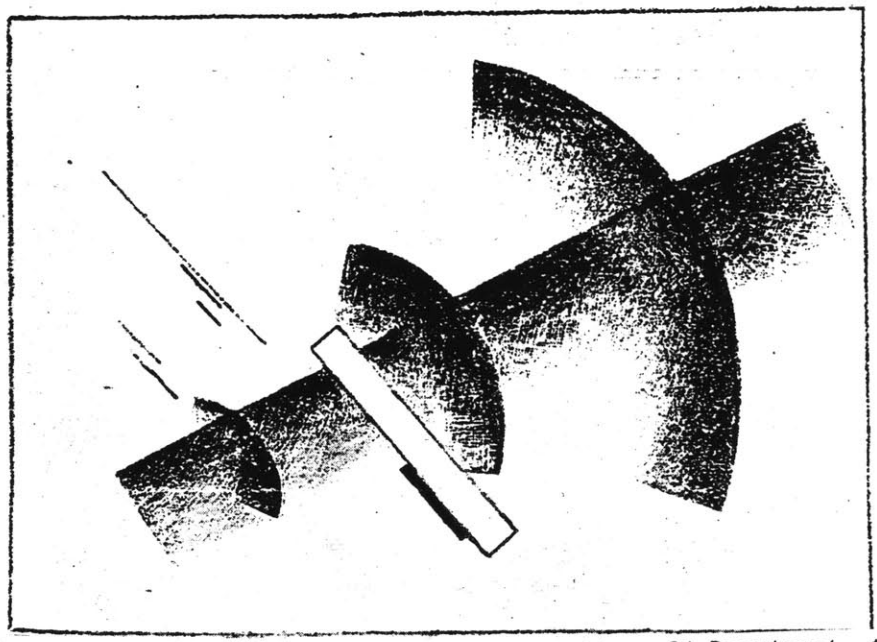


Kazimir Malevich: 'Suprematism', 1917

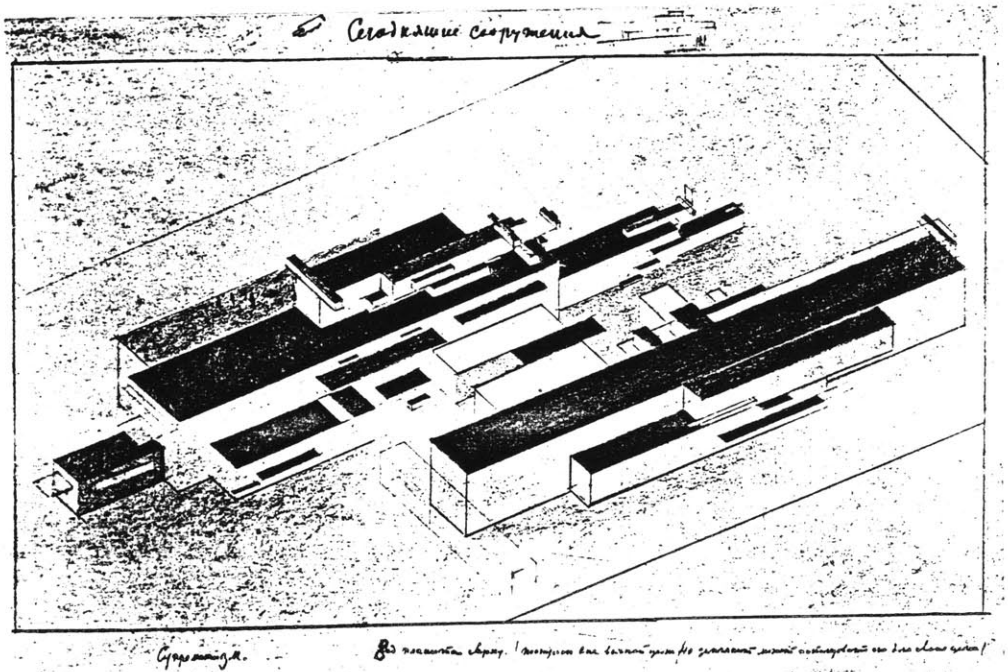


Kazimir Malevich: 'Suprematist Structure, 1915-16

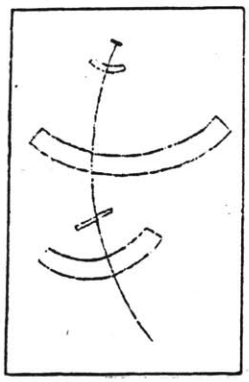
Fig. 11

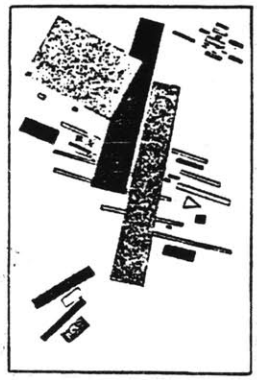


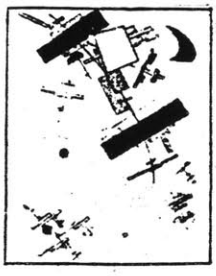
Kazimir Malevich: Illustration from 'Suprematism, 34 Drawings', 1920



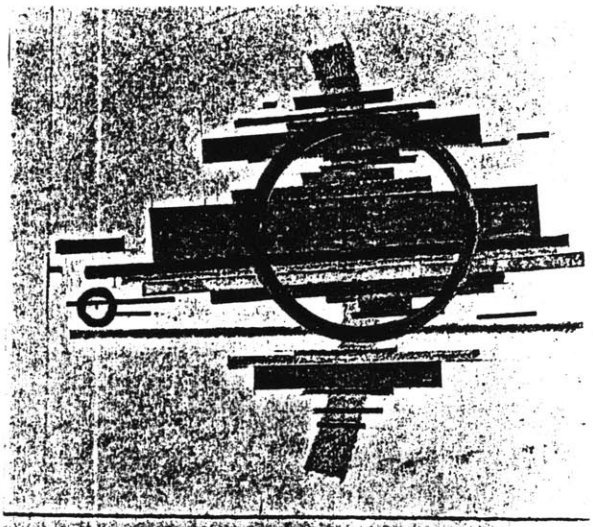
Kazimir Malevich: 'Todays Constructions', 1923-24



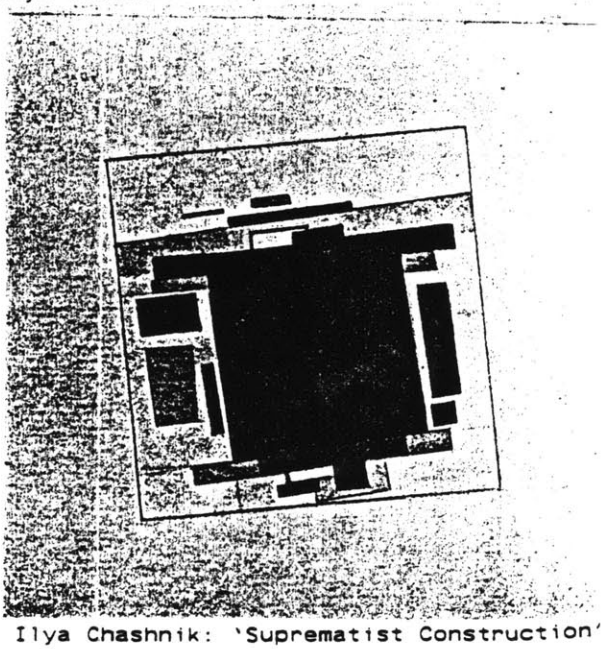




Kazimir Malevich:
Illustrations for 'Suprematism, 34 Drawings', 1920

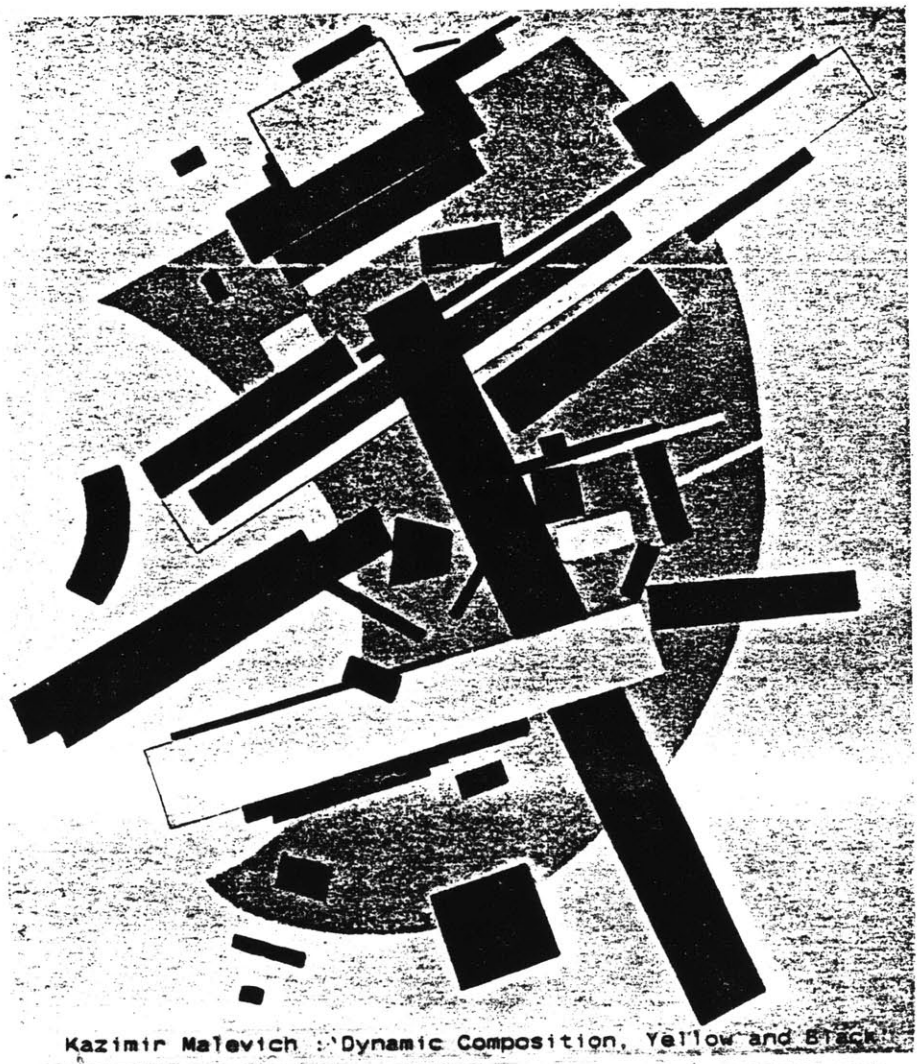


Ilya Chashnik: 'Suprematist Constructions, 1923

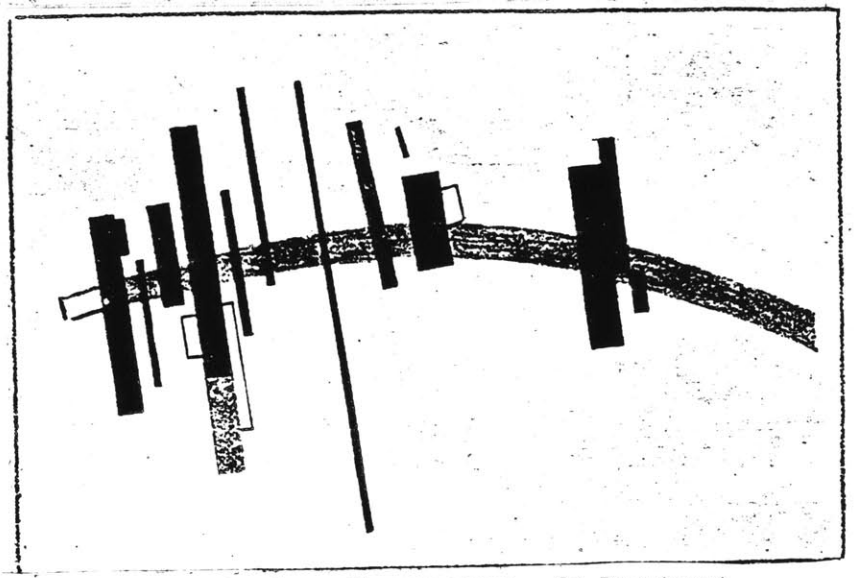


Ilya Chashnik: 'Suprematist Construction'

Fig.12

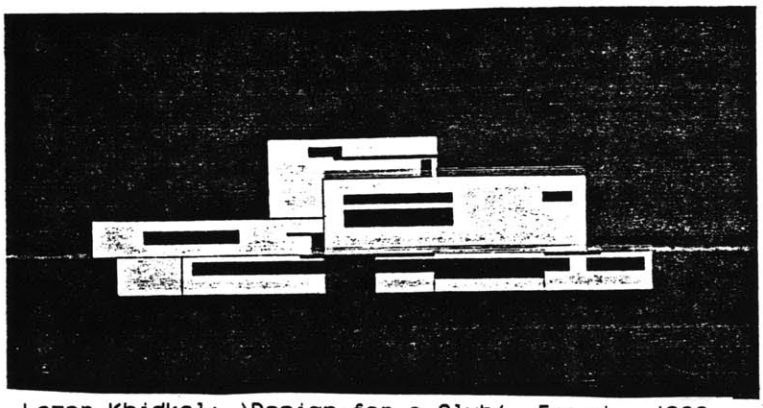


Kazimir Malevich : 'Dynamic Composition, Yellow and Black'

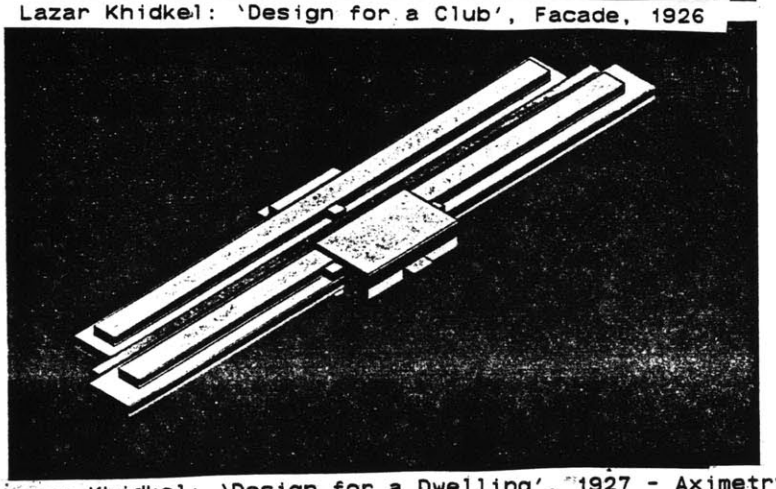


Kazimir Malevich: From 'Suprematism - 34 Drawings'

Fig. 13



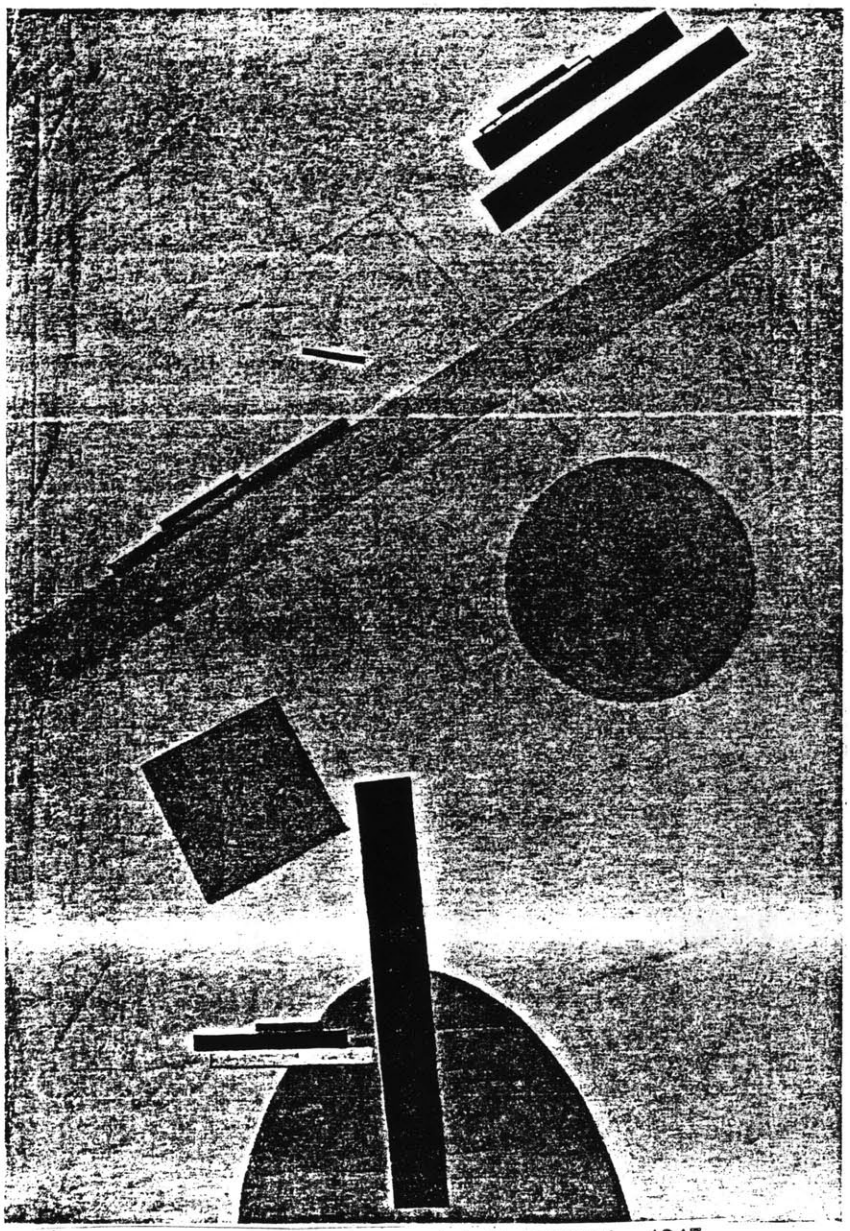
Lazar Khidkel: 'Design for a Club', Facade, 1926



Lazar Khidkel: 'Design for a Dwelling', 1927 - Aximetry

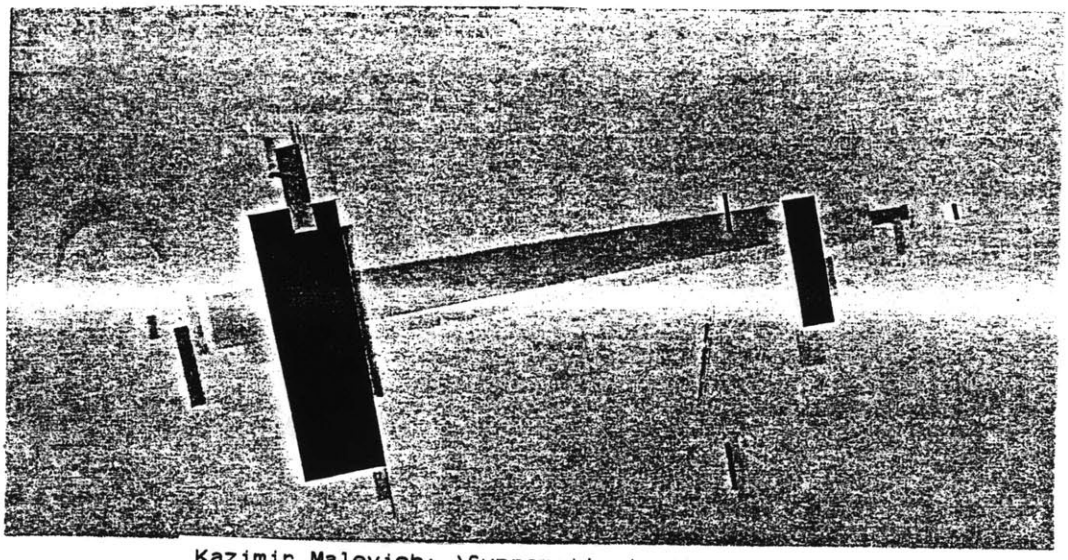
Zaha HAdid: Perspective View: Private Club, Hong Kong

Fig. 14

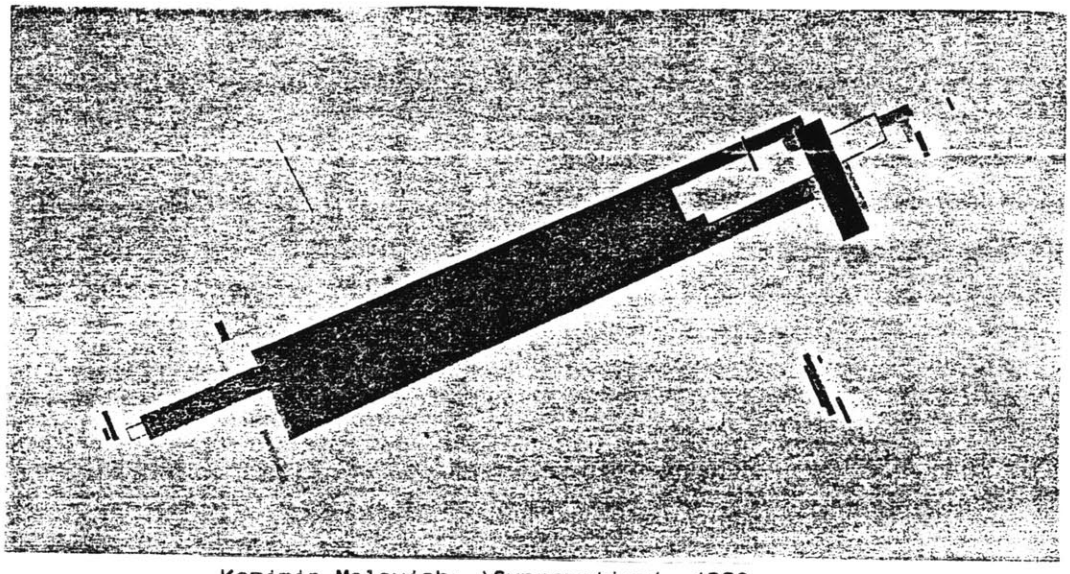


Kazimir Malevich: 'Suprematist Painting', 1917

Fig. 15

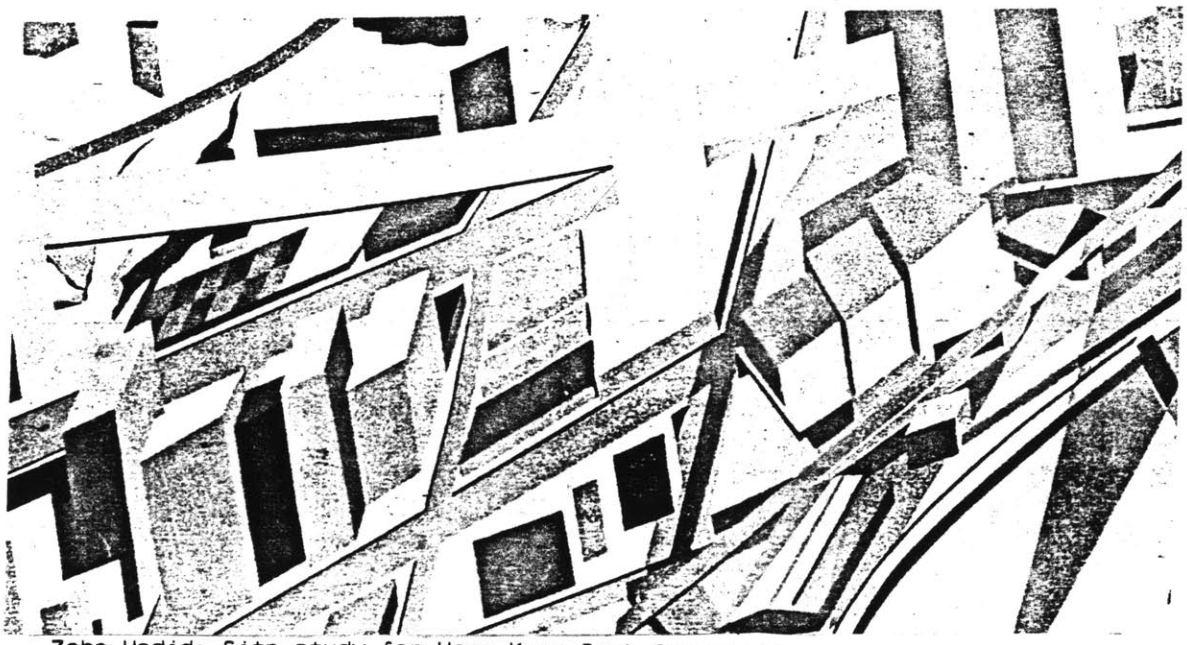


Kazimir Malevich: 'Suprematism', 1934

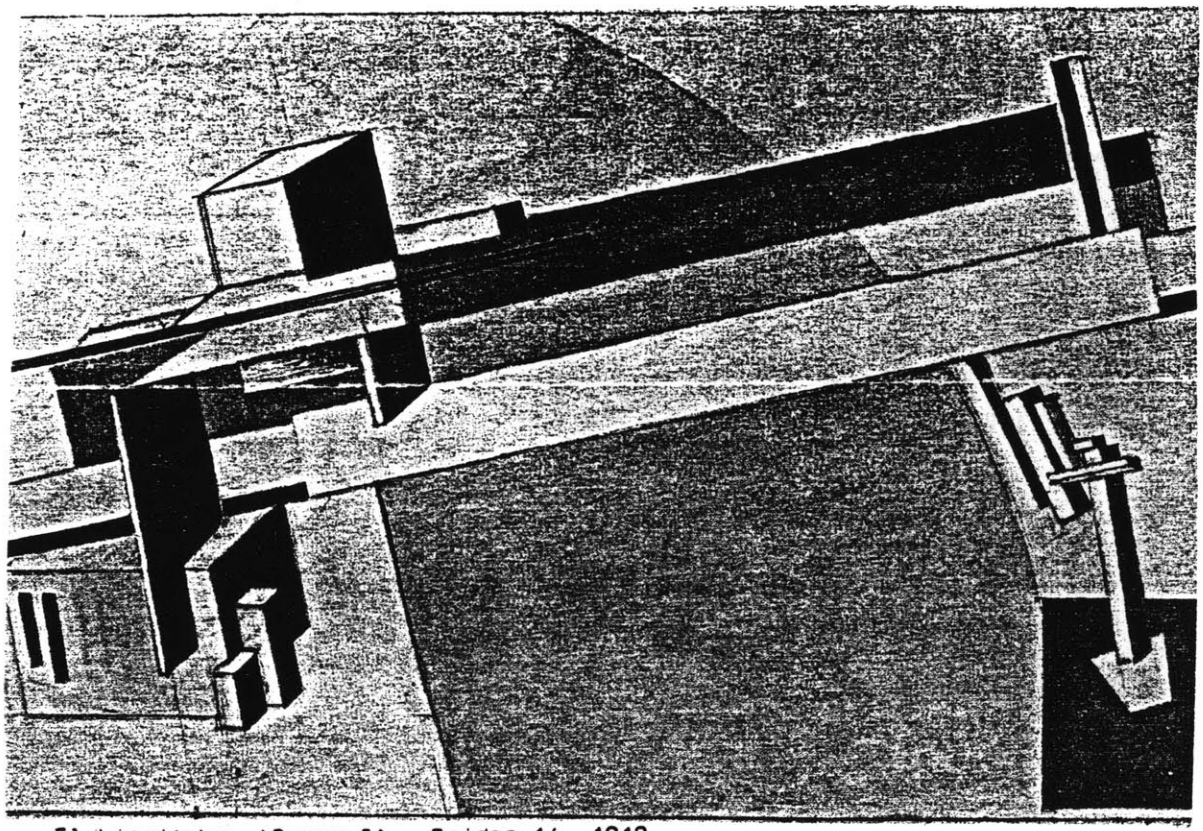


Kazimir Malevich: 'Suprematism', 1932

Fig. 16

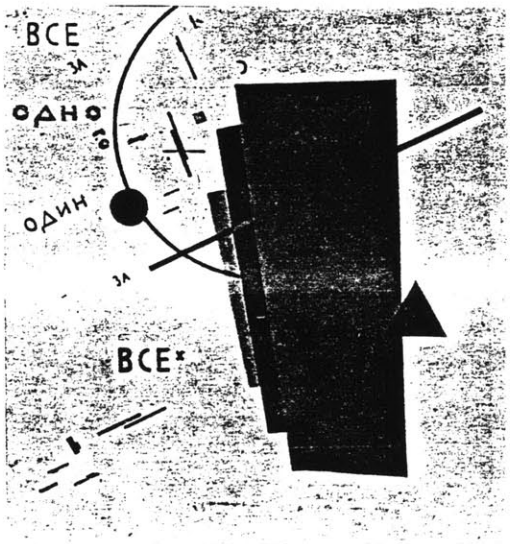


Zaha Hadid: Site study for Hong Kong Peak Competition

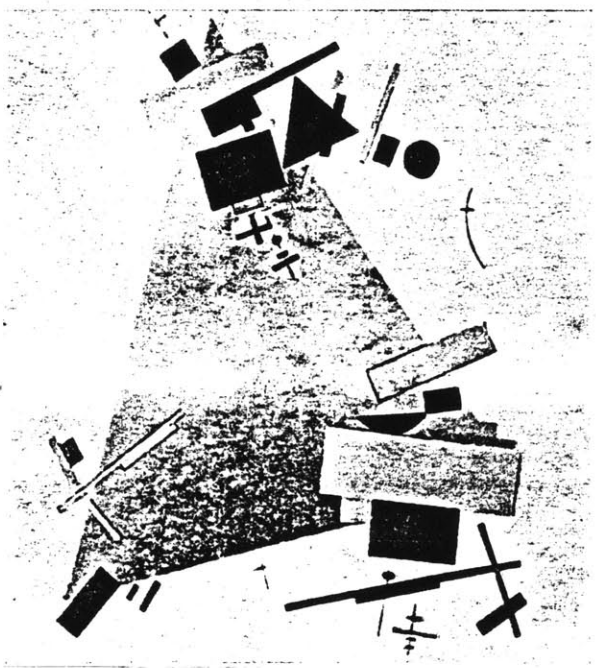


El Lissitsky: 'Proun IA - Bridge 1', 1919

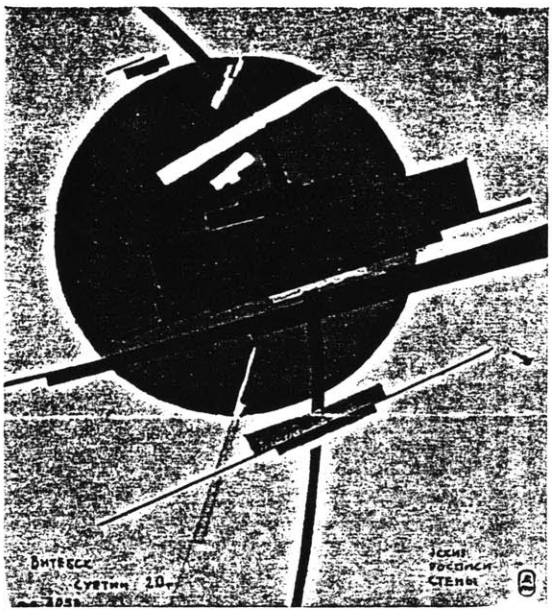
Fig. 18



Ivan Chervinka: Design for a poster, 1920



Kazimir Malevich:
'Dynamic Colour Composition', 1917



Kazimir Malevich: 'Suprematist Painting' 1917

unique and unrepeatable. The tension between these two factors determines the emphatically modern spatial style in which these architectons were formulated.

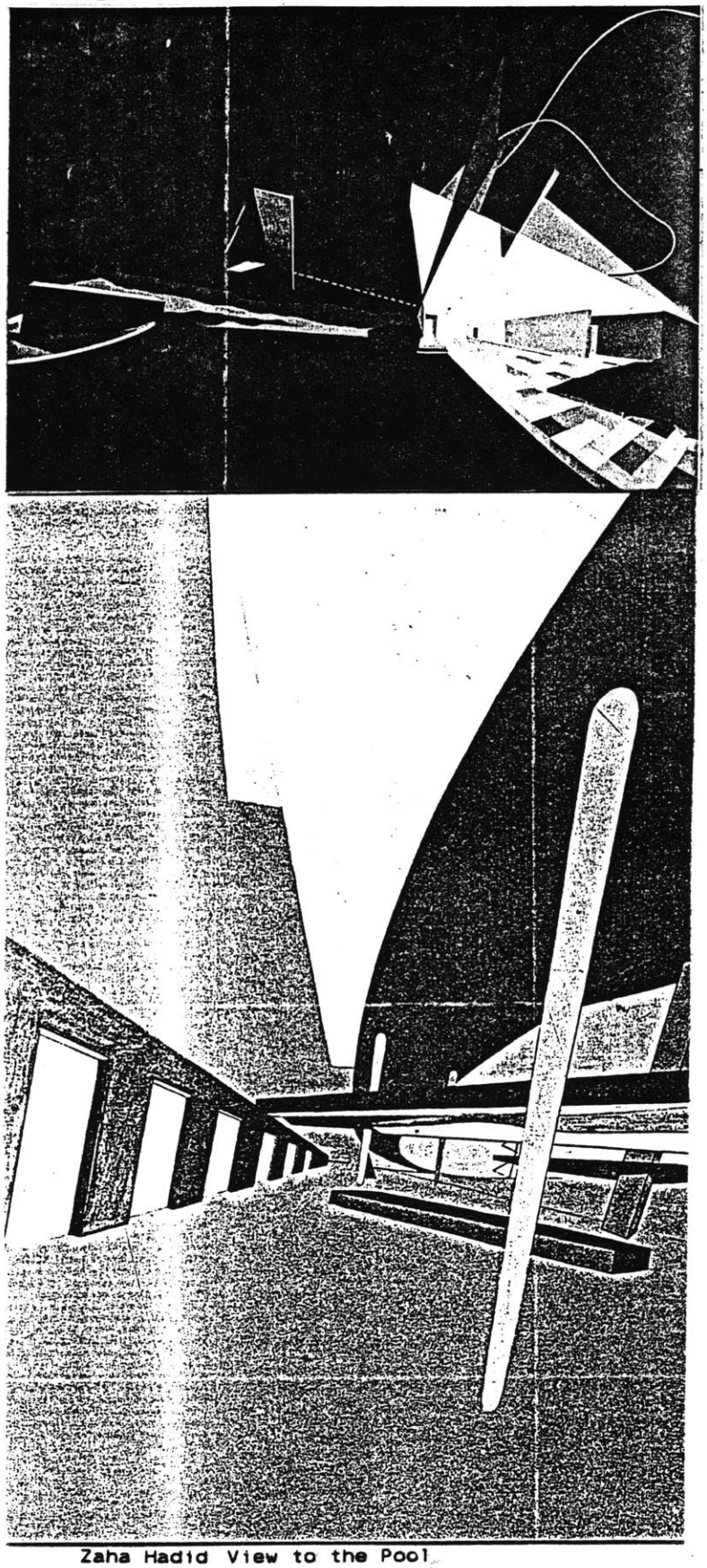
The orders of classical antiquity were *based on* the *static plasticity* of volumes, *these suprematist models are based on the dynamic plasticity of space* [*Fig. 7*].

I disagree with Siegfried Gideon when he says that these architectons are in essence closely related to the plastic tendencies of the 'megastructure' movement of the 60's. *I would like to point out here that the 'dynamic symmetry' that they call to our attention was one that remained within the realm of fantasy and untested for sixty years.* It is only expressed today in a concrete fashion in the work of Hadid, Bernard Tschumi, and Rem Koolhaas (OMA), which I shall refer to in detail later.

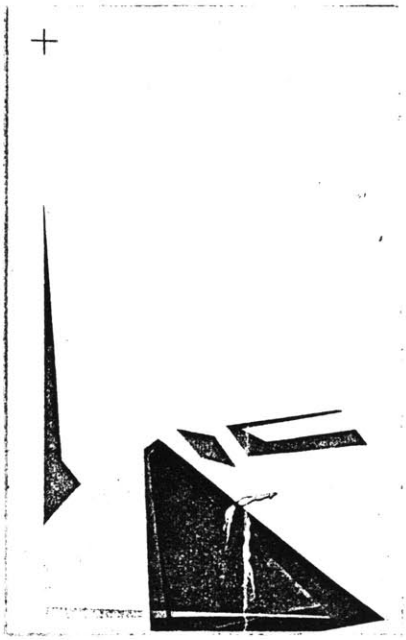
Malevich and Tatlin though they used a different method and approach, dialectically complemented each other. They worked in a common cause by contributing to the creation of a spatial style which has found an expression in reality today.

Despite the monumental nature of these Architectons they are anti-massive and emphatically light. One could even imagine *horizontal architectons hovering in space.* The basic concept behind the peak project puts down in reality all of the above. Turning to Zaha and her philosophy, which is in essence is backward looking, it seeks to test the viability of representing the ideas and notions that were essentially brought up by the Constructivist and Suprematist movements [Figs. 8–18]. She uses this method not only as a new way of representing her architecture, but also to discover how things can be altered and developed. The elements in her drawings appear from nowhere (horizontal flying beams), intersecting with the landscape and ending with a finished object. Every drawing has a scenario, implying a manipulation

Fig. 19



Zaha Hadid View to the Pool



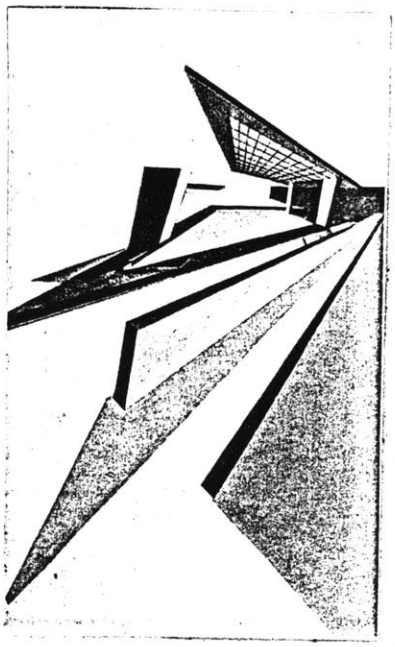
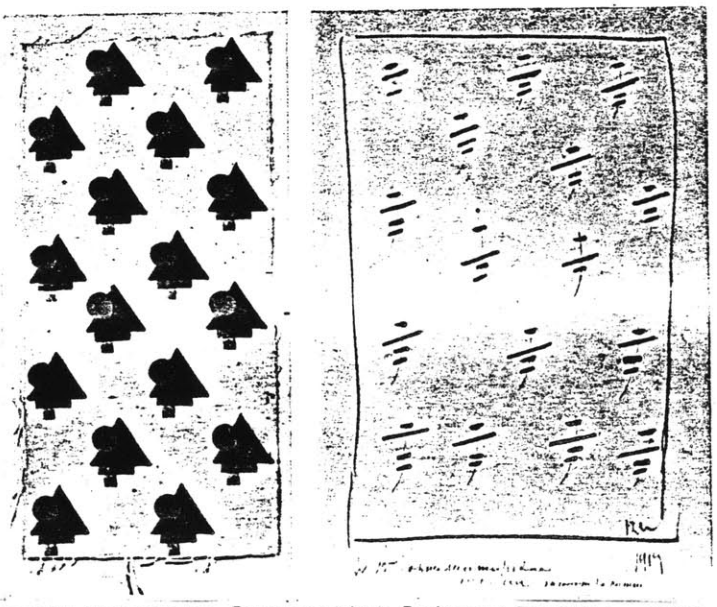
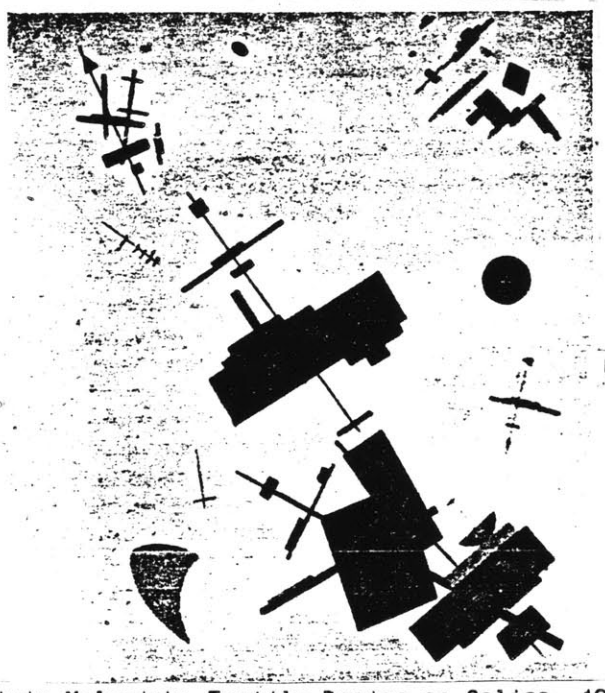


Fig.20



Kazimir Malevich: Suprematist Printed Textile, 1920



Kazimir Malevich: Textile Design on Calico, 1919

Nikolai Suetin, Suprematist Textile Design, 1921

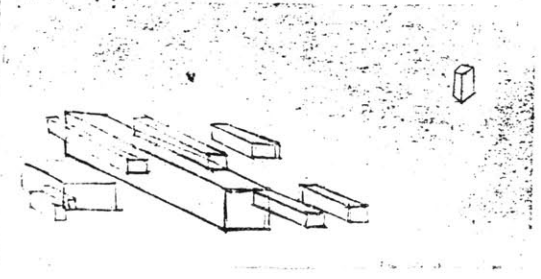
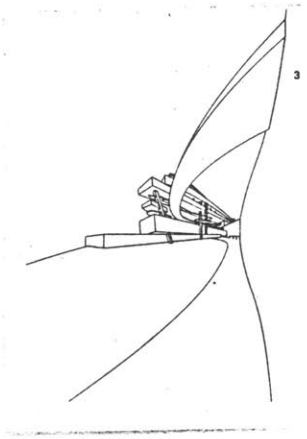
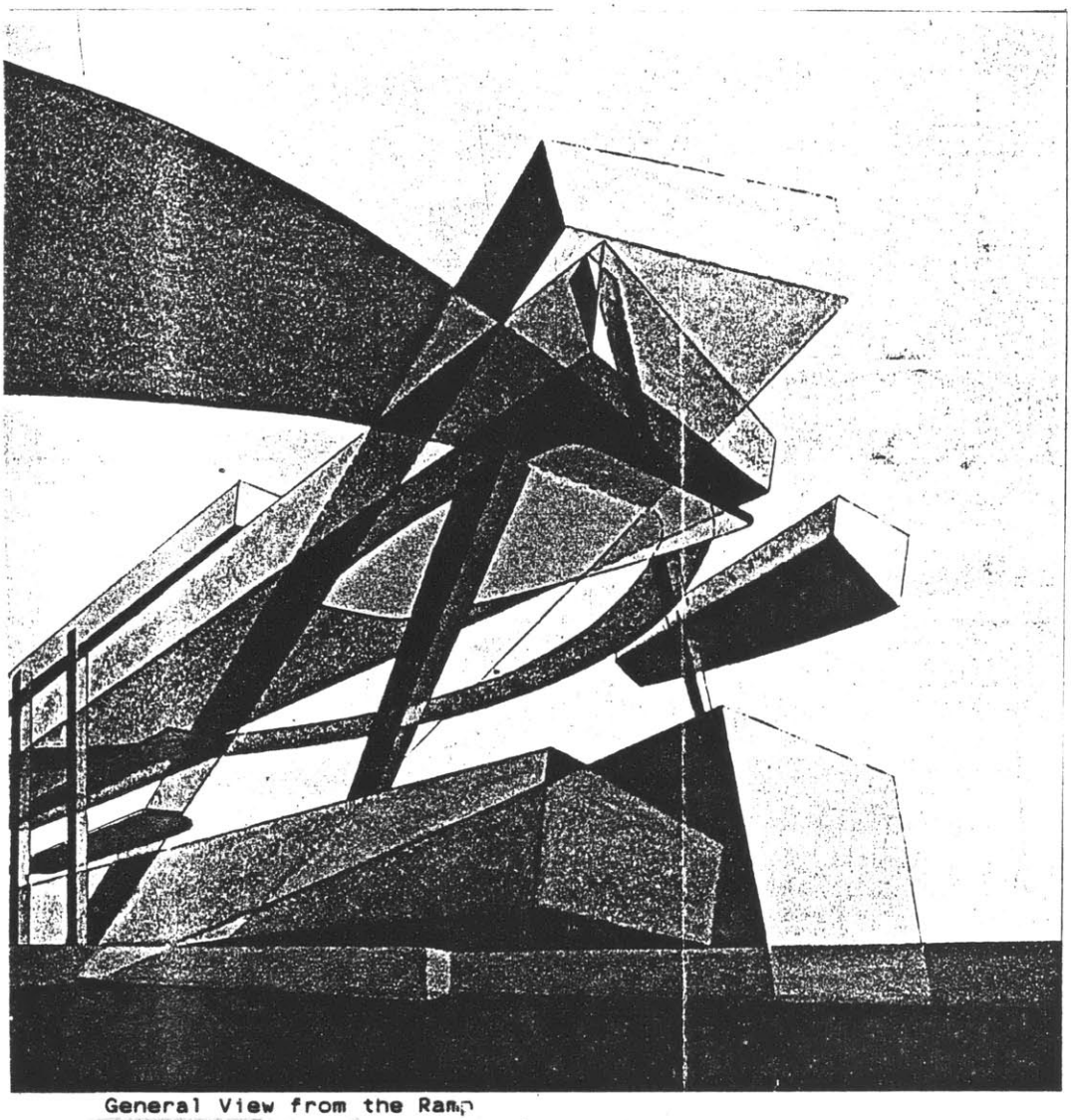


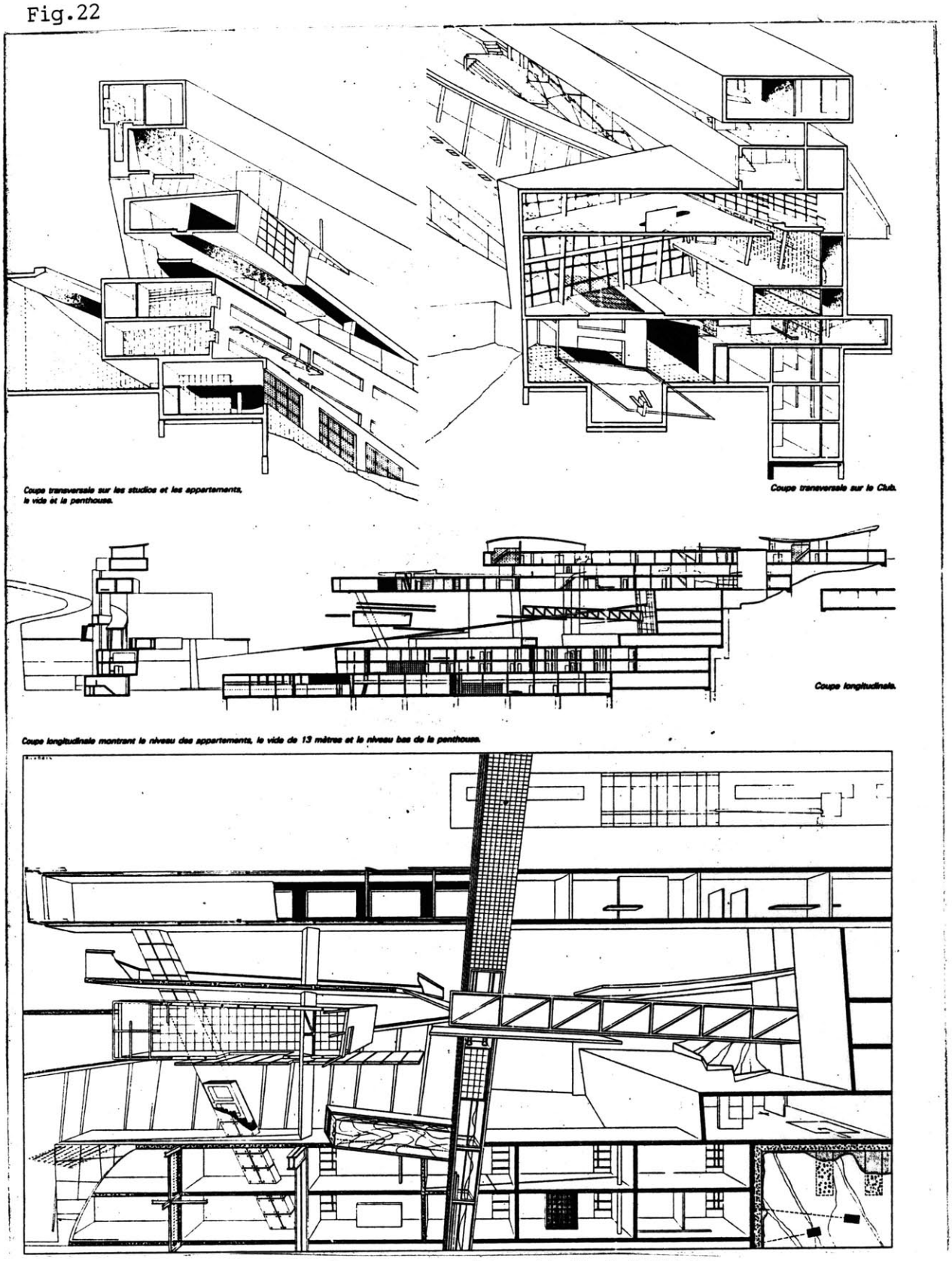
Fig.21





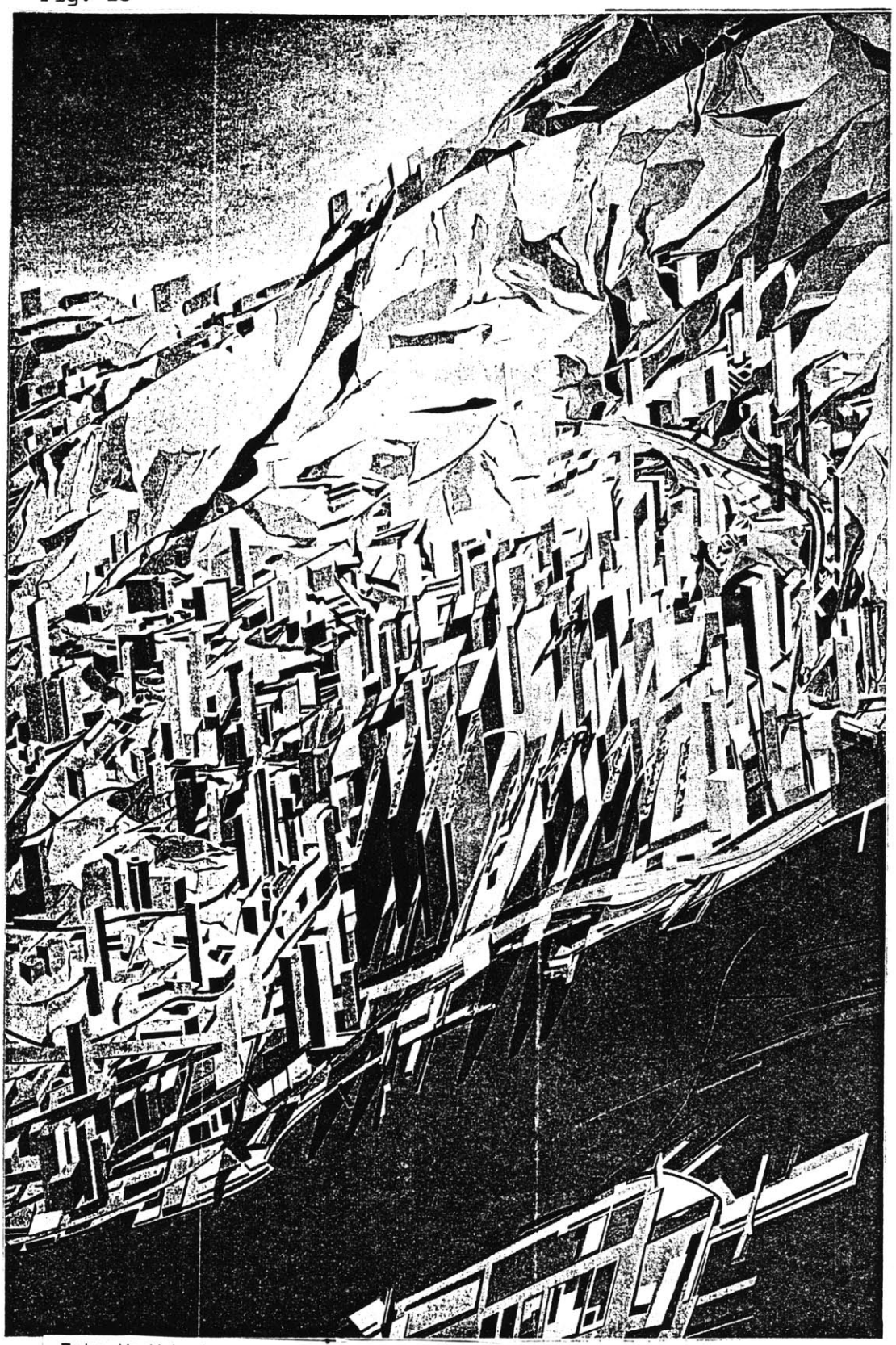
General View from the Ramp
Zaha Hadid

Fig.22



Zaha Hadid: Transverse and Longitudinal Sections
Private Club, Hong Kong

Fig. 23



Zaha Hadid: Axonometric view of the site

of the city fabric, showing how the programe fits with the urban condition. Much of her work is reminiscent of what Carra and Boccioni were trying to say.

One has to constantly oscillate between two and three dimensional objects, in an effort to arrive at a complete synthesis of the two.

There is a source of unexpected sensibility in Hadid's work, despite the fact that her obvious point of departure is from the Russians.

Her design for the Hong Kong Peak competition, is a brave step towards revealing the latent poetic energy of the site. Her project can be seen as a piling of geological plates, which through their mutual displacement serve, at the same time both to excavate and reconstruct, the original body of the mountain [Figs. 19–23]. Hadid maintains a ruthless superposition of culture on nature. The building itself is compounded out of folded concrete plates or mega-beams which are stacked and rotated in such a way, as to create two large voids close to the crest of the peak, one which accomodates the main entry foyer of the club and the other which runs out as a step–terrace along the ridge of the mountain.

The strength of her work lies in *"energetic spatial fluidity"*, in the fact that the space she creates stretches constantly towards the infinite, a celebration of the potential triumph of modern man.

This explosion of space and form, relates her work to a trend in architecture, that is exemplified by the projects of OMA and the and the anamorphic projections of Libeskind.

Daniel Libeskind: Fragmentation as a Trend

> "It is only when the processes that orient these transformations are themselves forgotten, the conscious awakened is form from its dogmatic slumber by a return to the unoriginal." Daniel Libeskind

He further describes the state of architecture as "an episode of transition in perpetual flux". There is in all of the above a defined leaning toward the unconventional, towards a spirit that wants to break away from the necessity of dogma and tradition. It is infact a vivid echo of the futurist manifesto, an echo that takes aspirations out of a state of impotence into a realm of coming to terms with the existing conflict in contemporary architectural theory and design.

Out of this emerges evidence to support continued transgression of accepted ways of doing things. In the 18th century, the drawings of Piranesi were considered un-buildable and were said to have limits because the traditional representation of perspective was changed. The 20th century constructions of Lissitsky, Tatlin and Ledoux were considered limiting for they transgressed metaphorically, a convention of construction.

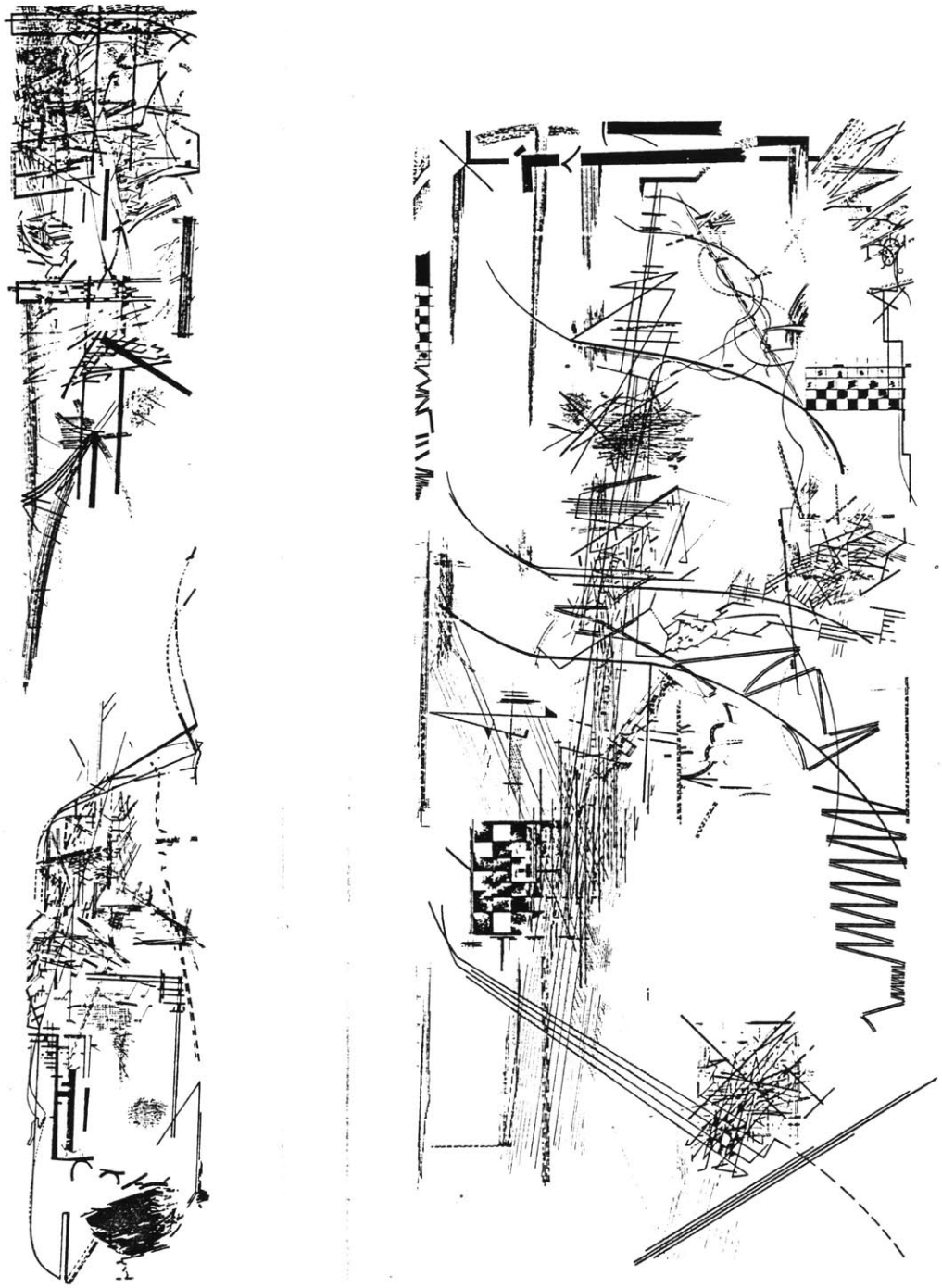
> "Architecture as nonexistent reality is a symbol which in the process of consciousness leaves a trail of hieroglyphicsm in space and time that touch equivalent depth of unoriginality." Daniel Libeskind

It is within this episode of transition and perpetual flux that the drawings of Daniel Libeskind must be placed.

Within the present context of architectural representation, they are a critique of the traditional way of drawing in architecture. He is essentially interested in the de-construction of thought about architecture. His work then is a de-assembly of elements. His work began in a series of gridded collages, as fragments of both paintings and architecture and finally acquired a unique vocabulary.

This fragmentation was the begining of an attempt to set elements free from their function, in both their tectonic and formal sense, from the causality of form and function.

Fig. 24



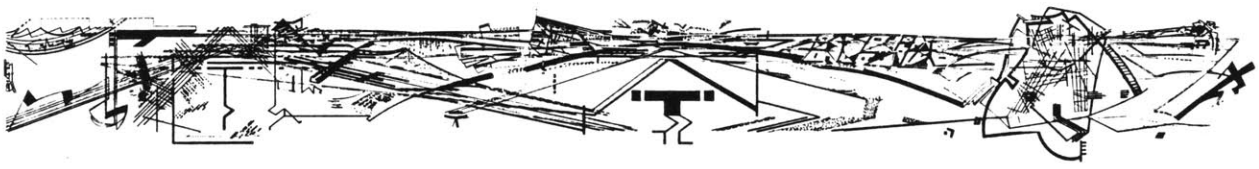
Architectural Meditations on Themes from Heraclitus

Daniel Libeskind: 'Chamber Works'

Fig.25

Horizontal VI

Fig. 26



Horizontal VIII

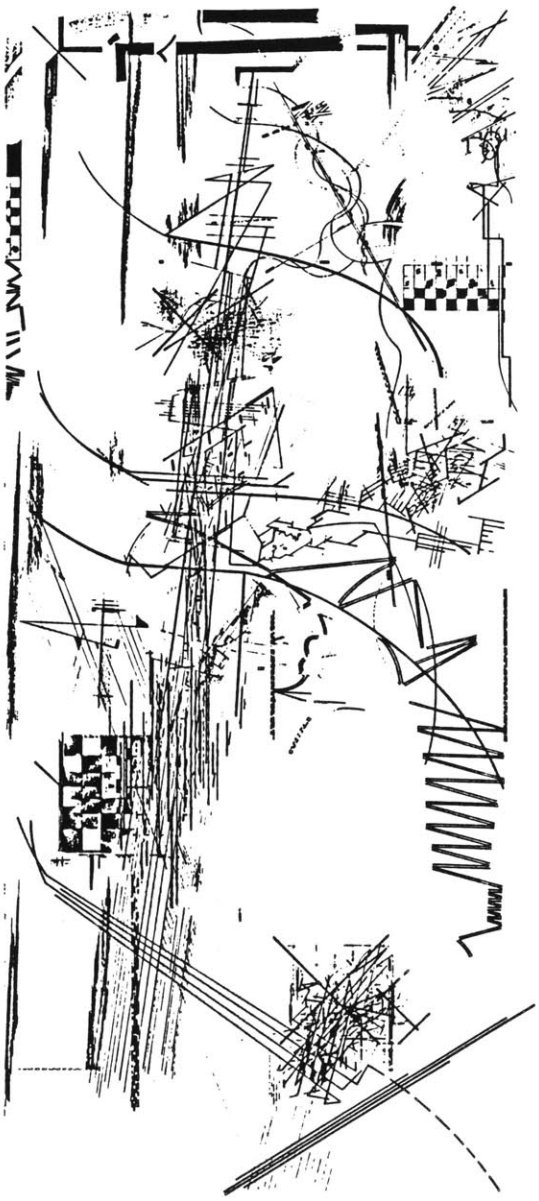
Fig. 27

Horizontal X

Fig. 28

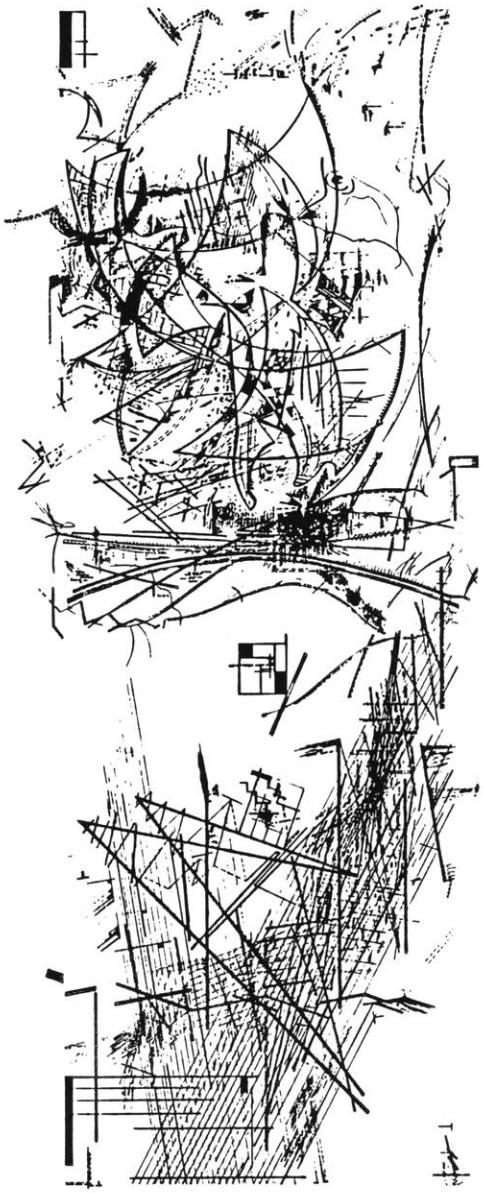
Horizontal XII

Fig. 29



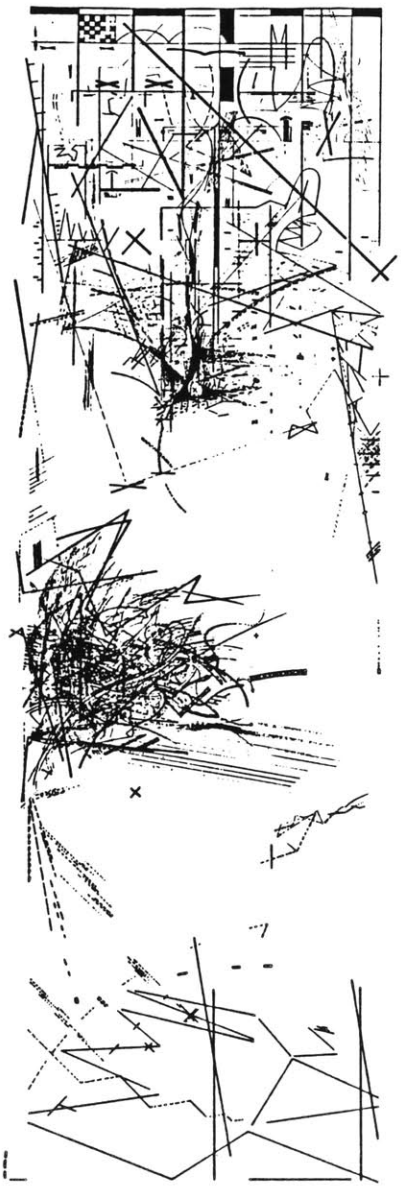
Vertical III

Fig. 30



Vertical IV

Fig. 31



Vertical V

Fig. 32

Verticai VI

Theirs is a realm in which signs compose a score of spatial music.

His Chamber works is composed of a series of inventions in which beginning and end mark neither origin nor terminus, but only moments in a series of larger transformations [Figs. 24–32]. The work evolves around internal symmetries rather than evolving along conventional lines. It submits all previously fixed elements and then rapports to a yet higher principle of variability, creating a new principle for variation, which makes every form a variant of another.

These drawings break the conventional boundaries of architecture, not only in their cyclical changing of elements, but also by their presence within an unbounded field. By making revolutionary projections, he has extended and expanded the realm of architectural imagination beyond the familiar terrain of sites and images.

We are led therefore to a realisation, where the science of pragmatic realism is challenged. He can be termed as "an architect of the spirit" in contemporary terms, and quite analogous to Chernikov, Lissittsky and Malevich, who were creators of a 'spirit' that had not existed before them.

His work penetrates down to the very roots of architectural conception. Its nature lies in the fact that his work provokes thought out of dogmatic petrification, to a state of conflict. Beyond this conflict lie unexplored avenues of expression. As much of the spirit of the futurists is being realised today in one form or another, always transformed, so may these works prove to be of value in breaking the habits of the minds of architects in the future.

Most imaginative work in achitecture has for a long time been accomplished almost exclusively through drawing, although it is manifested most exclusively through building. The great peculiarity of architecture as a visual art, one it shares with orchestral,

choral and operatic works along with film, is the considerable distance between the process of composition and the thing being composed.

Libeskind's work is ultimately a metaphysical speculation on transcendental architecture, whereas Hadid's work suceeds in realizing a re–definition of synthesizing elements in architecture and re–constructing them into a new vocabulary.

In other words all these transformations are achieved only after going through a time–lag that exists between an idea, notion or spirit and its actual formal and physical expression. Nothing old is ever reborn. But it never completely disapears either. And anything that has been, always re–emerges in a new form.

This thesis deals with an enquiry equipped to verify the spirit of an age, with an attempt to understand how and when this spirit was followed by expression in form, and then translated into a contemporary language.

The establishment or re–establishment of a theory is necessary, when the detachment between the methodological movement and the theoretical bases upon which it had been built, becomes evident.

Most of the theories that came up in *the 60's* , instead of leading to a unitary base led to the *formation of a series of dispersed and contradictory theoretical fragments, none of them lasted or became permanent.* This *theoretical fragmentation* seems to be a new mode of existence. Today being an architect means being an intellectual before a professional or artist, because the construction of a theoretical base and methodological tools for each project, has become the *unavoidable question in design.* And so we are faced with a subtle *crisis of transformation* in professional work. I would argue that there are definite roots to certain trends in contemporary architectural expression.

There is a manifestation today of *'technology,* used as an external force acting on a cultural concept, that is becoming professionally institutionalized in architecture. Architecture is really an index for what 'has been' and what 'will be', but resides always in the 'present'.

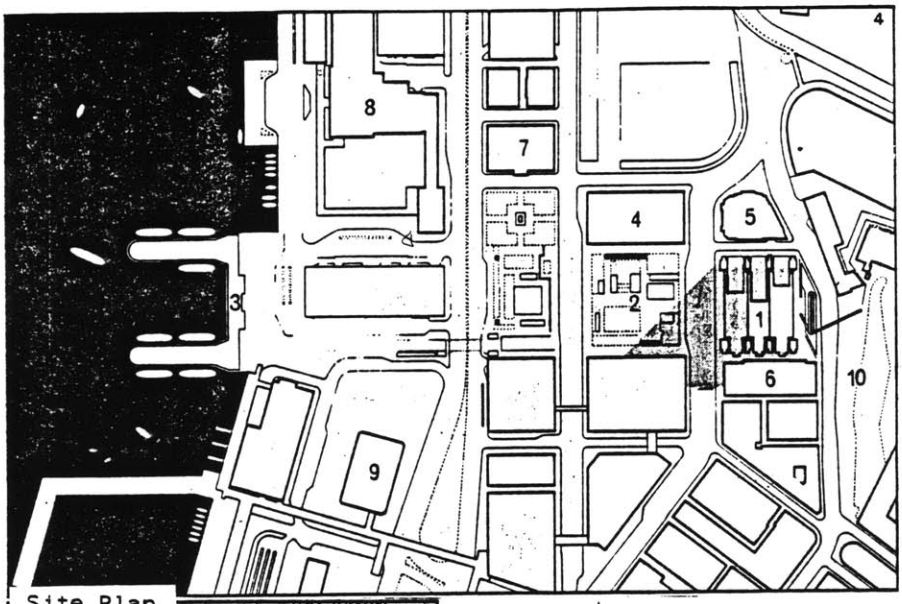
Norman Foster: Backward Looking Utopias

Assimilating the Machine

I want to turn to the Hong Kong Shanghai Bank project, designed by Norman Foster and currently in its last stages of completion [Figs. 33 & 34]. This will help give a clear notion of the sharp dichotomy that exists in architectural representation and understanding. Moving from a trend that advocates a fresh look at architecture, I would like to use the bank project and Foster's notion of technology to indicate that despite the popular idea of this being a project that looks towards *the future,* it is in reality, following an extremely backward notion of technology. One that was expressed in the early 1900's. but its impact was never achfieved at the scale of works like the Hong-Kong Shanghai Bank project. For me this project is entirely reminiscent of the 1920's and *the movie 'The Shape Of Things To Come',* [Figs. 35-37] movies such as this and others, had great visions, utopias of what the future would look like. The majority of these were never realized. It seems *ironic that 60 years* later they find themselves *expressed as "futuristic" once again.*

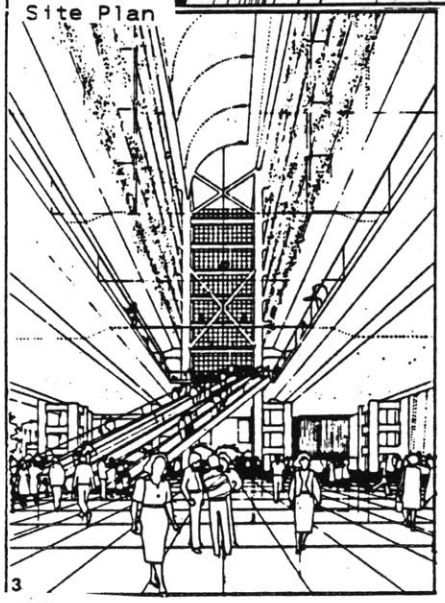
Just as Malevich's work and ideas were a beginning and not an end, in that they liberated architecture from the impotence of empty forms and the superfluity of meaningless architectural elements, leading ultimately to a re-discovery of the essential elements in architecture, in the same way the Futurists arrived at abandoning traditional and classical orders. Futurism was the most aggressive of the movements towards a new art and architecture.

Fig. 33



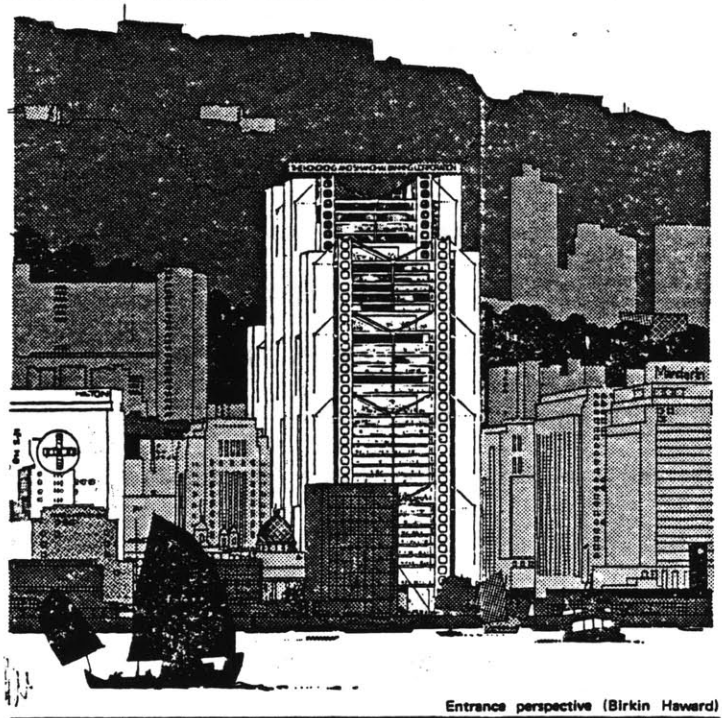
1. New Headquarters for the Hongkong and Shanghai Banking Corporation
2. Statue Square
3. Star Ferry
4. Courts of Justice
5. Bank of China
6. Chartered Bank
7. Hong Kong Club
8. City Hall
9. Connaught Centre
10. Battery Park

Site Plan



3

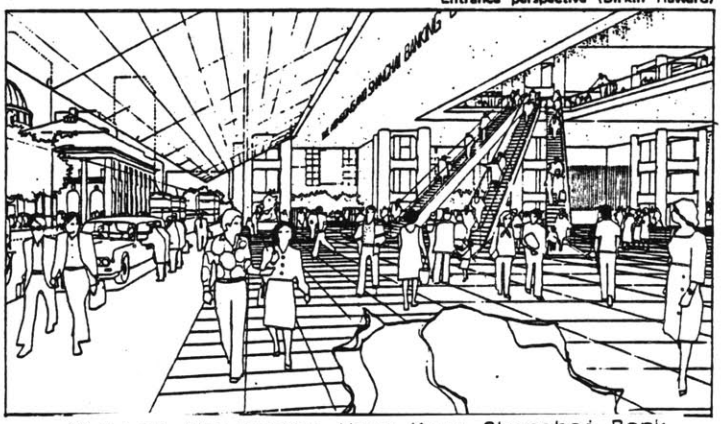
View of the Lobby



5

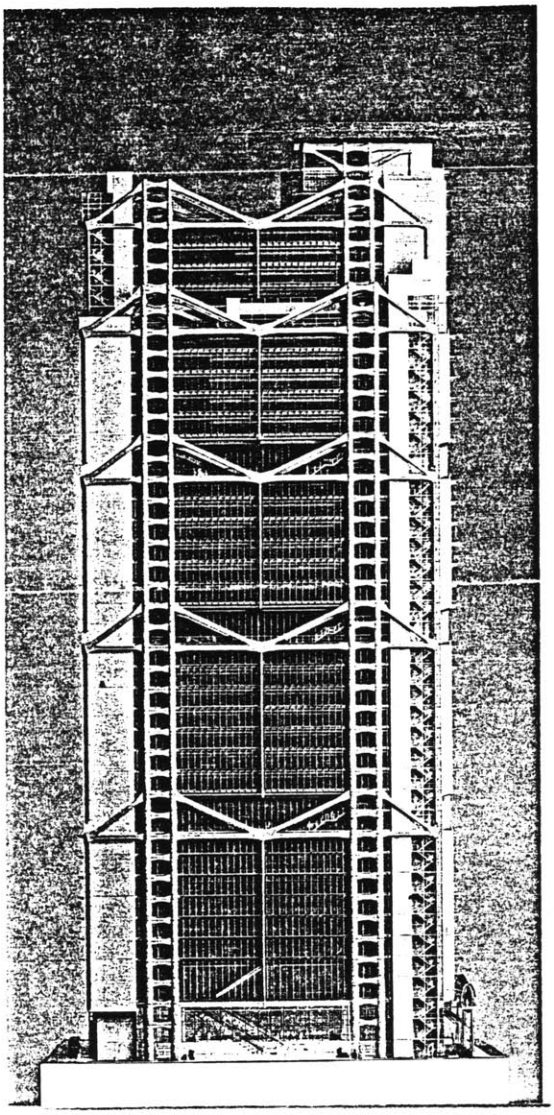
View of building in context

Entrance perspective (Birkin Haward)

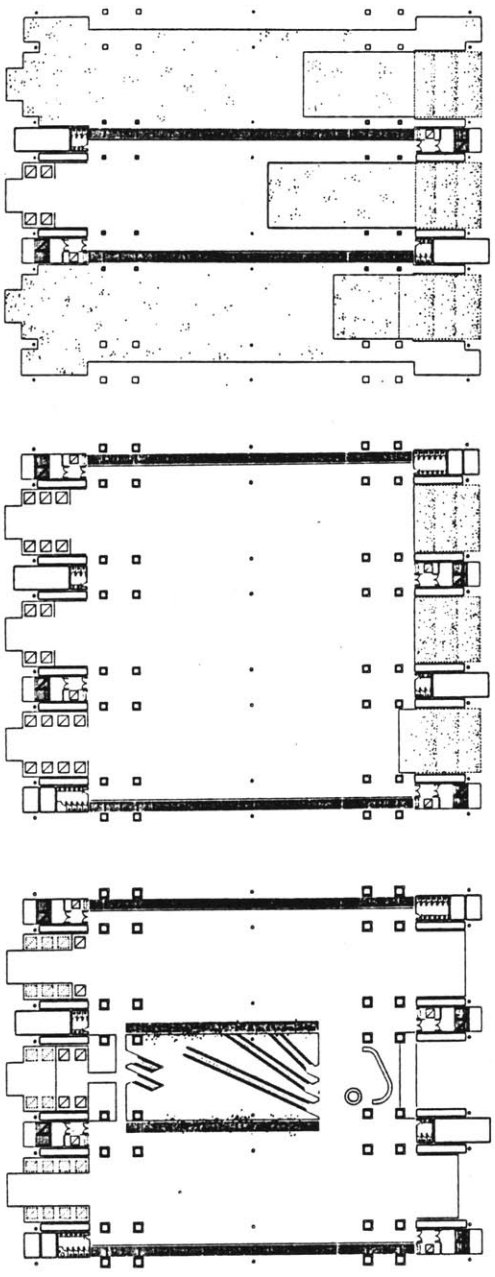


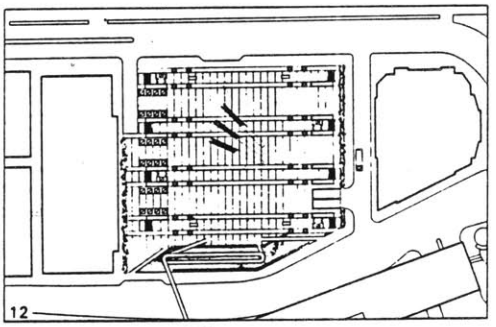
View of the lobby: Hong Kong Shanghai Bank

Fig. 34



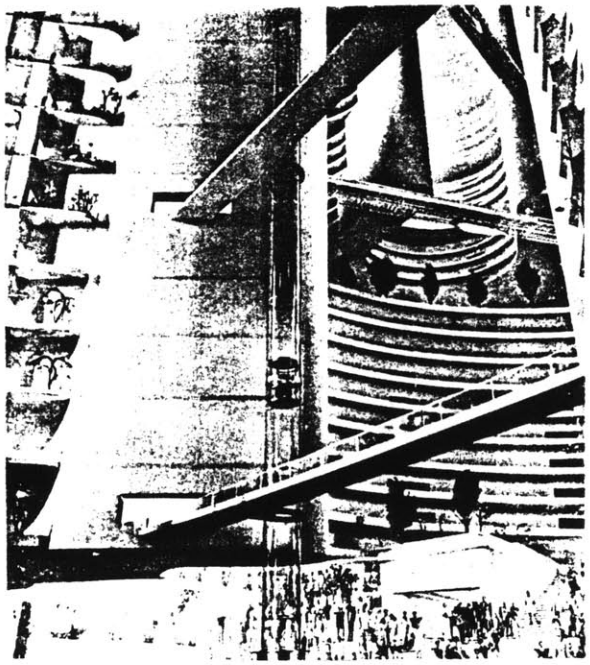
Headquarters: Hong Kong Shanghai Bank



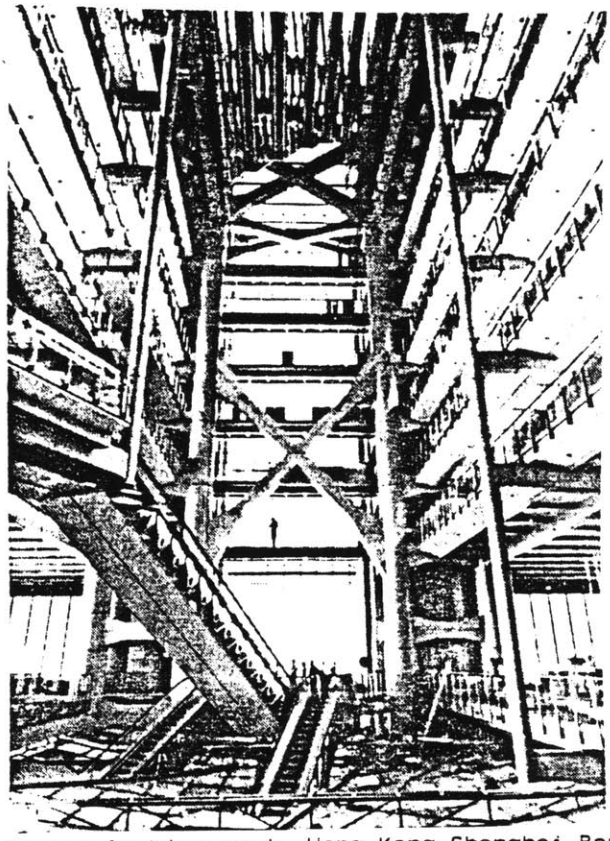


Plans

Fig. 35

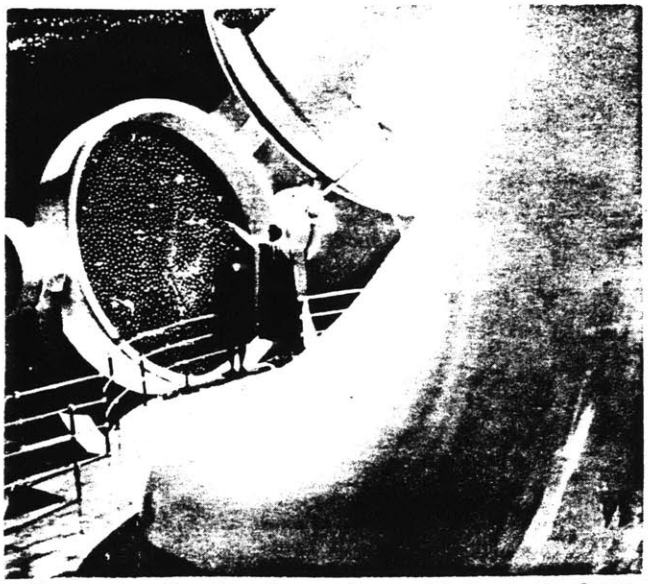


Alexander Korda: Scene from 'Things to Come'
Showing 'Everytown', in 2036, 1936



Atrium looking east: Hong Kong Shanghai Bank

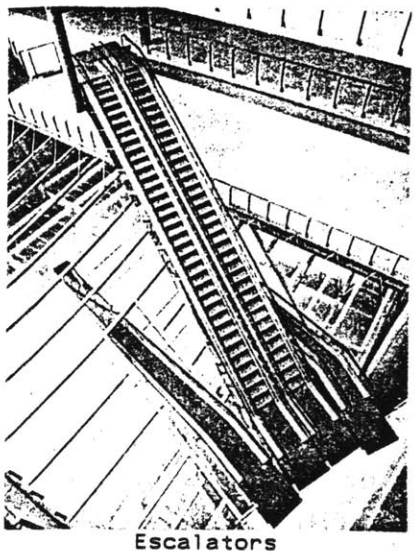
Fig. 36



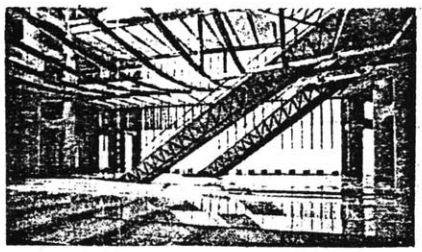
Alexander Korda: Scene from 'Things to Come
Showing 'Everytown', (in 2036), 1936

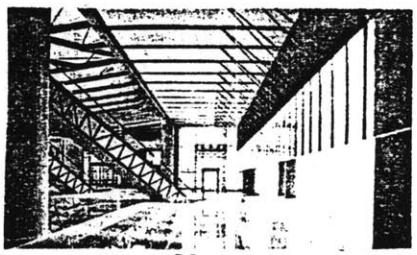
From the film 'Just Imagine' by David Butler, 1930
Against the backdrop of a futuristic New York
J-21 courts LN-18

Fig. 37

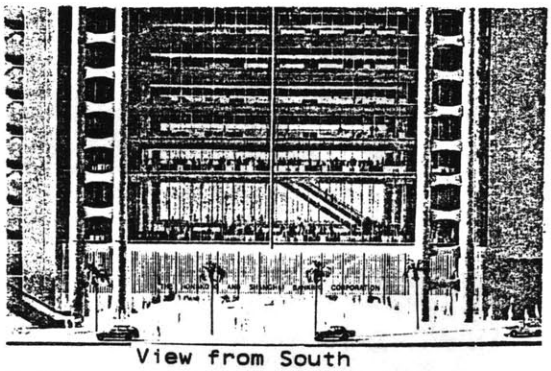


Escalators

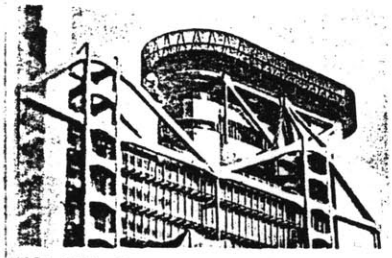




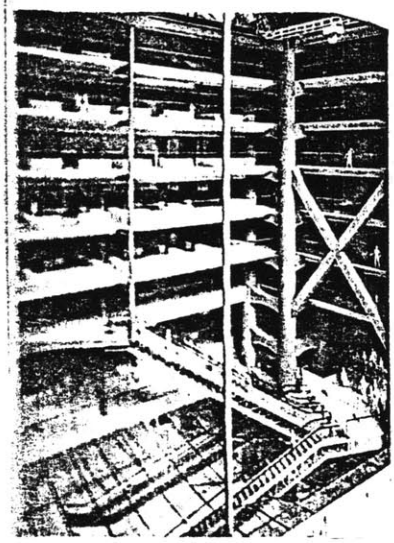
Plaza



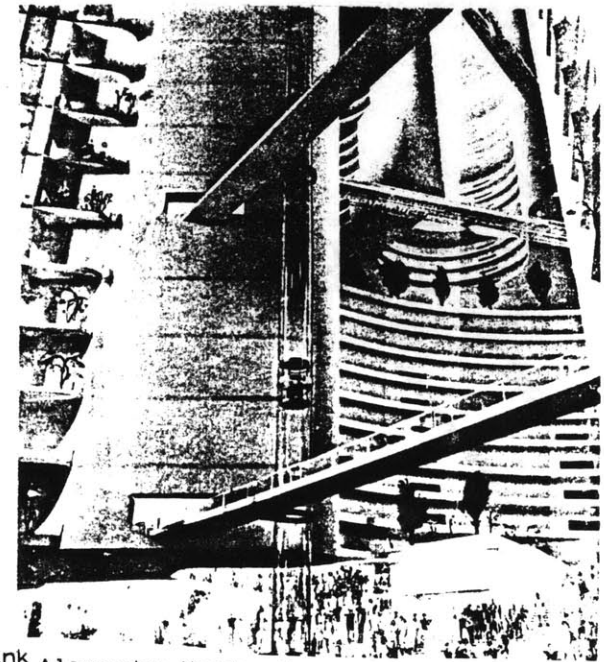
View from South



Top of Building



Interiors: Hong Kong Shanghai Bank



Alexander Korda: Scene from 'Things to Come' Showing 'Everytown', in 2036, 1936

Its main characteristic was the abolition of the static, movement and dynamism were its key ideals. Saint Elia in his "Manifesto of Futurist Architecture" wrote:

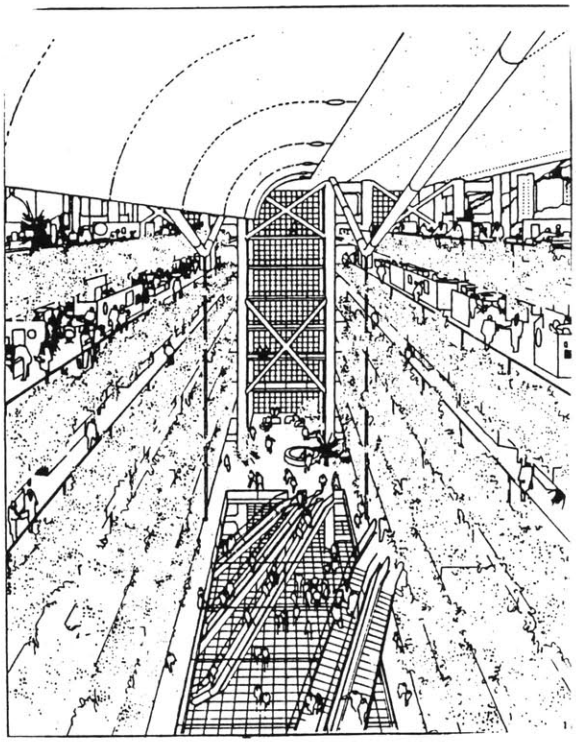
> "We must abolish the monumental and static. Architecture is not, for all that, an arid combination of practicality and utility, but remains an art that is synthesis and expression".

Foster's building is an accepted contemporary manifestation of form, it seems to stand in clear defiance of all associations involving a break in tradition. By its very nature, it is a static, colossal and monumental structure. It undisputedly employs a new sstructural system, but one that exists entirely for its own self fulfillment rather than introducing a fresh approach to the design of high-rise buildings. Skyscraper design has been dominated by decisions based on the idea of the volume as a parameter given by economics, the 'architectural' problem lying in the nature of the 'surface enclosing the volume'.

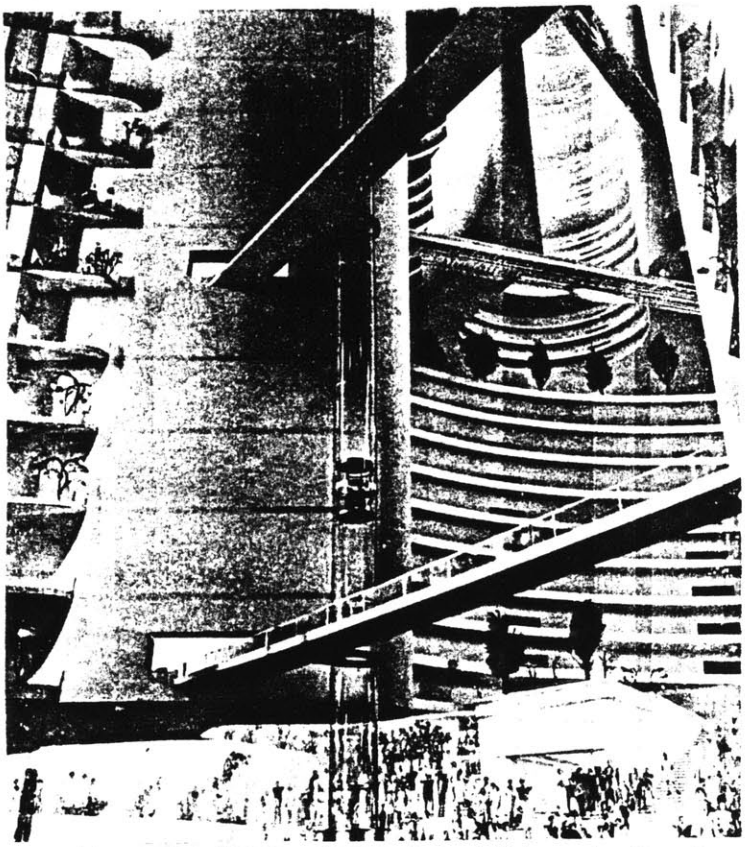
No longer satisfied with the pure cube sheathed in a glazed curtain wall, architects have sought to give 'character' to skycrapers either through the manipulation of the shape of the tower, or through ornamental treatment of the skin. In this way, the tower becomes a shed to be decorated, this becomes possible because the technology of skyscraper design has already forced a distinction between the body of the building and its external surface. Foster's building does not move forward towards a re-definition of a skyscraper in contemporary terms. It can be described as a monumental form associated with the dead scheme of classicism combined with an accumulation of empty forms.

Looking Hong Kong, where street-scapes are a riot of colour, signage, calligraphy and graphics. Block after block of walk-ups have grown organic balconies, lean to's, miniscule hanging gardens, verandahs, awnings and shades. These live in sharp contrast with new office towers, which could be generic transplants form anywhere, anonymously

Fig. 38

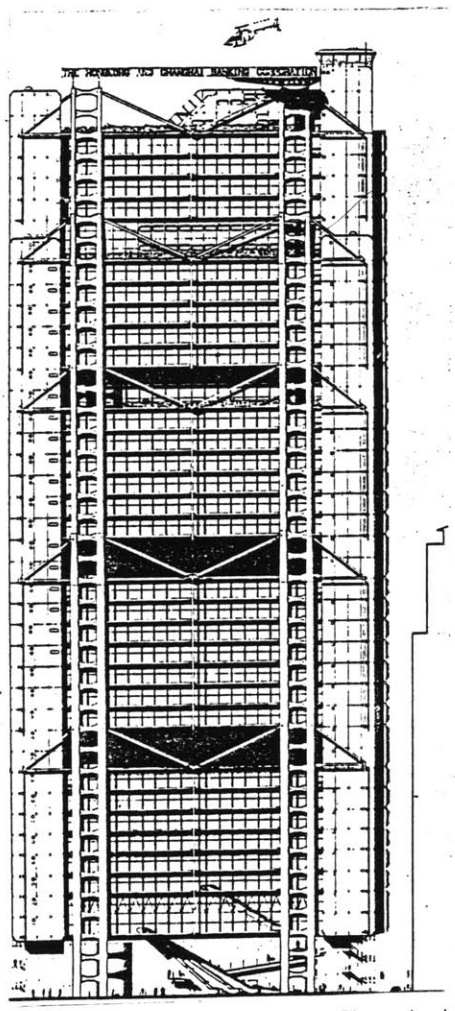


View of the lobby: Hong Kong Shanghai Bank



Alexander Korda: Scene from 'Things to Come'
Showing 'Everytown', in 2036

Fig. 39



Front Elevation: Hong Kong Shanghai Bank

mediocre and unaffected by the context of climate, site or culture. We find Foster's building as an extension of exactly these. It is as static, dull and lifeless as any large mega-structure, totally inward looking, with no reference to a world of conflict and colour at its feet. [Fig. 38] It stands as an eyesore, a reminder of the past. The current enthusiasm for high-tech architecture, could be more the result of political and corporate concerns, and not consideration for the design itself.

The building is constructed in three sections, 28,35 and 41 storeys in height. The main structural frame is of fire-proofed and clad steel. It consists of eight vertical mast assemblies, to which inclined main horizontal structures are attached at intervals. These elements provide lateral stiffness and suspension points for groups of floors [Fig. 39]. The design was strongly influenced by sources outside the traditional building industry. These range from the concorde design team to military establishments coping with mobile bridges to take tank loadings to the world of aircraft sub-contractors.

The so-called purpose of the Hong Kong Bank, was to celebrate the idea of technological progress, and thereby suggest a technological utopia. This work has been described as *"Soaring to the Technology of the Future".* To me this seems an *inherent contradiction,* due to its false allusion to high-technology architecture, and the creation of the future of form.

It may use new technology, but not in a new expression formally or functionally. It has little to do with content and the use of technology to generate a dynamic notion of architecture, which is well exemplified in the work of Jean Nouvel, which I shall refer to later. Foster however has failed to achieve, what he felt he was doing. His aim was to exploit the whole corpus of high technology, inluding various sectors involved in revolutionary changes, environment, information processing, materials and

energy in such a way as to achieve a great leap forward in the creation of a space and environment which would be socially acceptable to everyone.

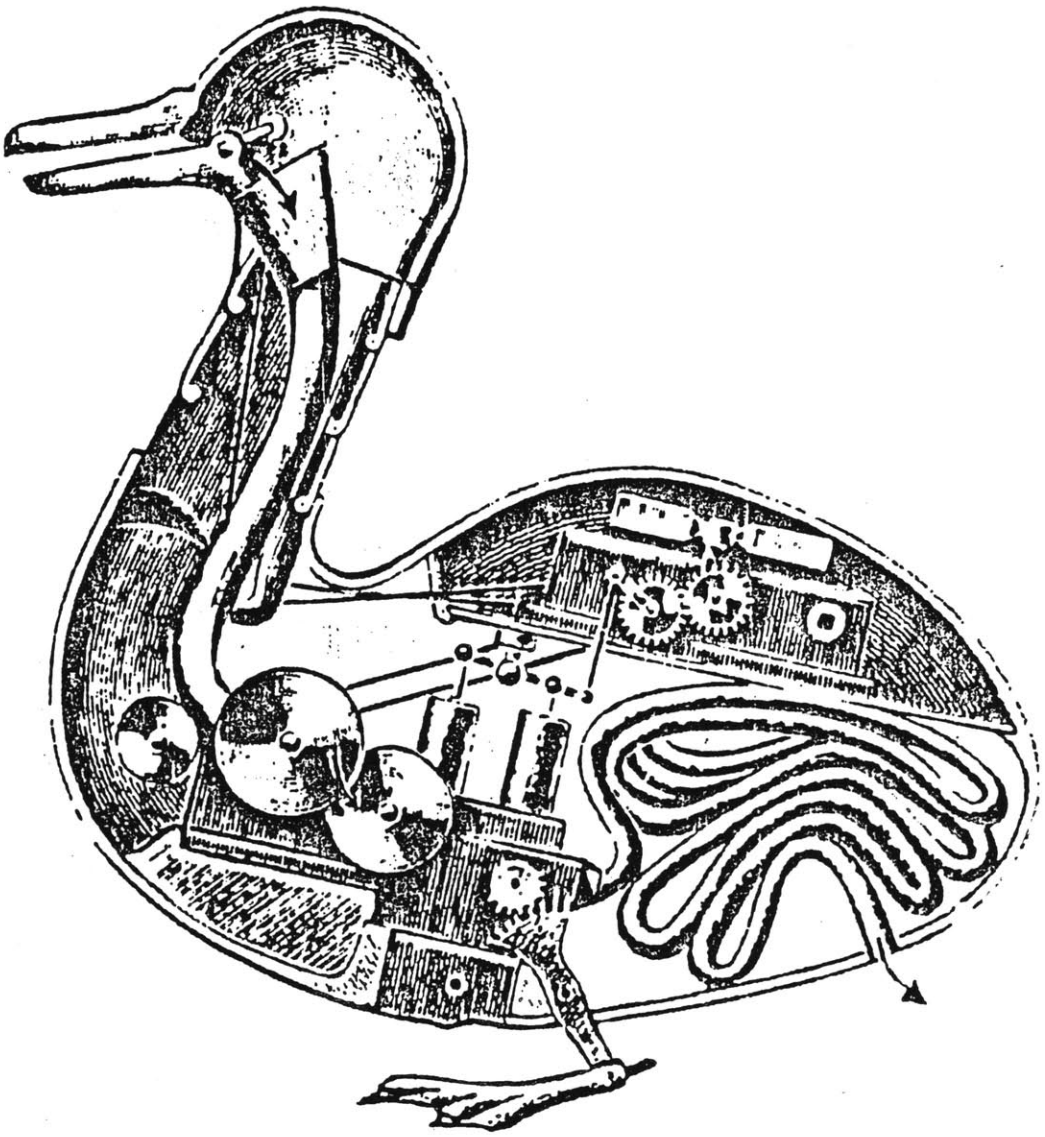
It may well be that Foster's building following in the tradition of the Beauborg centre, may be one of the last vestiges of an archaic representation of exposing structure for its own sake. For me his architecture in many ways falls into the same category as post-modernism. Whereas post-modernism seems to be an amalgam of historical and classical fragments put together in a coherent fashion. Similarly, Foster's building seems to be recalling the spirit of an age gone by.

Jean Nouvel: Re-constructing Principles of Thought in Architecture The third example I would like to use in this part consists of the work of ean Nouvel. An architect living, working and teaching in Paris. I refer to him to support my hypothesis that technology can be used to redefine formal aspects of architecture in new ways. That it need not revert to old ideas and legacies. It has to do with the notion of 'content' in the expression of buildings. This 'content' then becomes a direct result of technological progress, along with its interaction with a highly electronic, information oriented society.

It is recapitulating the idea of the machine, but in a very contemporary fashion, in a way that has not been used before. I would argue that it is re-defining the notion of form - translating the transition from static to dynamic in terms of facade and function.

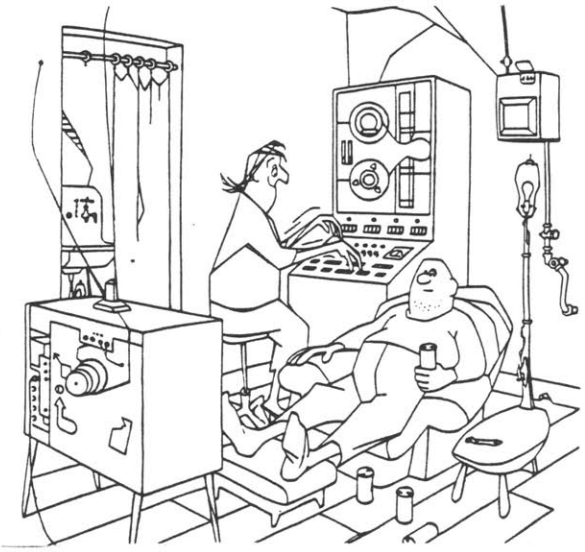
This is an architecture that has metamorphosed to a present day interpretation of the machine, metaphorically we see an interesting progression of the use of machine technology, describing what technomorphosis is all about. It has come a long way from the interpretation of *robotics as the science of progress and change,* not of

Fig. 40



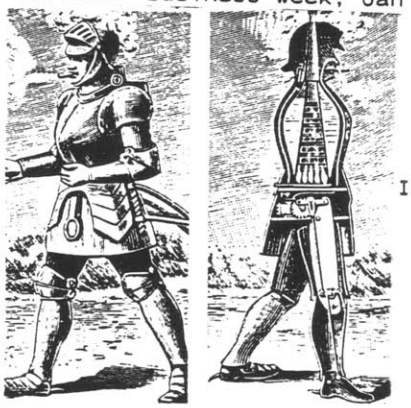
Vaucanson's 'Swimming, Drinking, Preening, Excreting Duck', 1738

Fig. 41



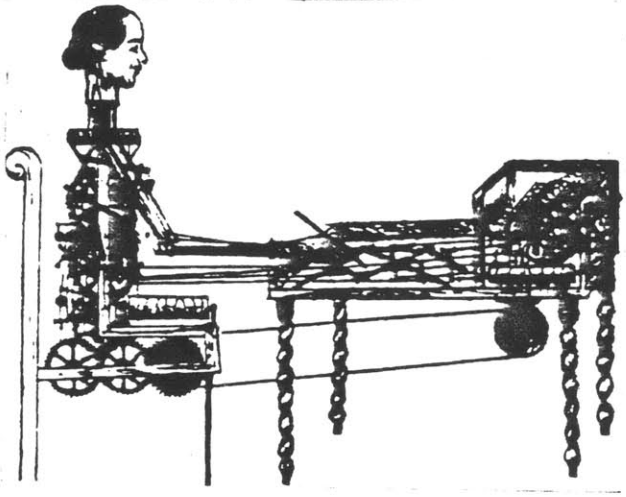
Cartoon- Business Week, Jan 13, 1978

The Jaquet-Droz Writer [circa 1774]
Inscription: 'I do not thing, therefore I shall never be'.



Steam Man', 1893

Leon Joly: 'Trick Automaton',
feigning to draw, calculate and write



Stanford Research Institute: Computerized Robot, 1970
Creating an awareness of the Environment

object and structure. What might be termed 'behavioural' similarity between robots and humans does not require a visual similarity, but in the earliest stages of robot development such a development was thought to be necessary [Fig. 40]. We therefore see machines like Vaucanson's 'Duck' of 1738, through the 'Japanese tea-making robot', to the famous 'Chess-playing Turk' of Baron von Klemperer - which was reputedly shot for making an impossible move during a chess game with Catherine the Great of Russia [Fig. 41].

> "The experience we desire from our building (in the future) be drawn from a fusion of the senses; the impact swift, instant, condensed, total: the message immediate, direct, possibly crude, unedited, unrehearsed, but real." John M. Johansen 1967.

As early as 1970, the expression of progress by means of huge monuments had become a thing of the past.

The work of Jean Nouvel, despite its heavy use of technology is a much more thoughtful one. It deals simultaneously with issues that are the roots of the conflict in contemporary architecture. The whole idea of fragmentation and representation. The crisis in architecture today is essentially one of validity. We no longer seem to know what counts as valid architecture, indeed what counts as architecture at all. There is a need for reconstructing the principles of thought that motivate and justify our ideas and action, particularly in the design process.

Meaning in architecture, can be treated as a system of semiotic inscriptions or as an expression of semiotics, that is, the relation between the sign and what it signifies.

The only way for architecture to get out of its present impasse, the only way to reconstitute the scope of a new rationality in architecture is not by indulging in the eclecticism called Post-modernism but by stepping back a little and re-examining the entire basis for the creation of architecture in a world that is fast becoming

dominated by machines/technology and the information/telecommunications revolutions. These are evolving at a pace that is faster than ever before.

Every self-contained system tends to generate its own rationality, which sacrifices the order that is peculiar to the system.

If we analyze technology historically, if we treat the totality of technologies in their development, then certain striking tendencies emerge and justify us in attributing to the technological system as an autonomy of its own. The pervading tendency of the system, is constant increase in efficiency. For as man evolves, develops and changes, so change his needs, his forms of interaction with the environment, with other people and with himself.

We must evolve a new rationality in architecture for post-scientific and post-technological man. Today we can take science and technology for granted and use them for creating conditions, which in previous epochs would have been called a utopia on earth.

For Nouvel an object is conceived by the spirit. In spite of the Beaux-arts domination, France nevertheless made a great contribution to the development of contemporary architecture throught the work of its inventive engineers, whose works were a challenge to prevailing traditions. Clashing with new engineering possibilities, tradition was not drowned easily. The wide spanned walls with new structures were made possible and finally accepted, but only on condition that the structure itself remain invisible. Henry Latrouse was the first builder, to be able, after much opposition, to make use of new structural possibilities. He was permitted use them only in the interior of the building. His library, St. Genevieve, looks on the outside like a usual stone building. It is characterized by heavy architectural forms and a

cornice out of proportion to the whole. But in the interior, heaviness has been replaced by lightness, the first architectural sign of the new age.

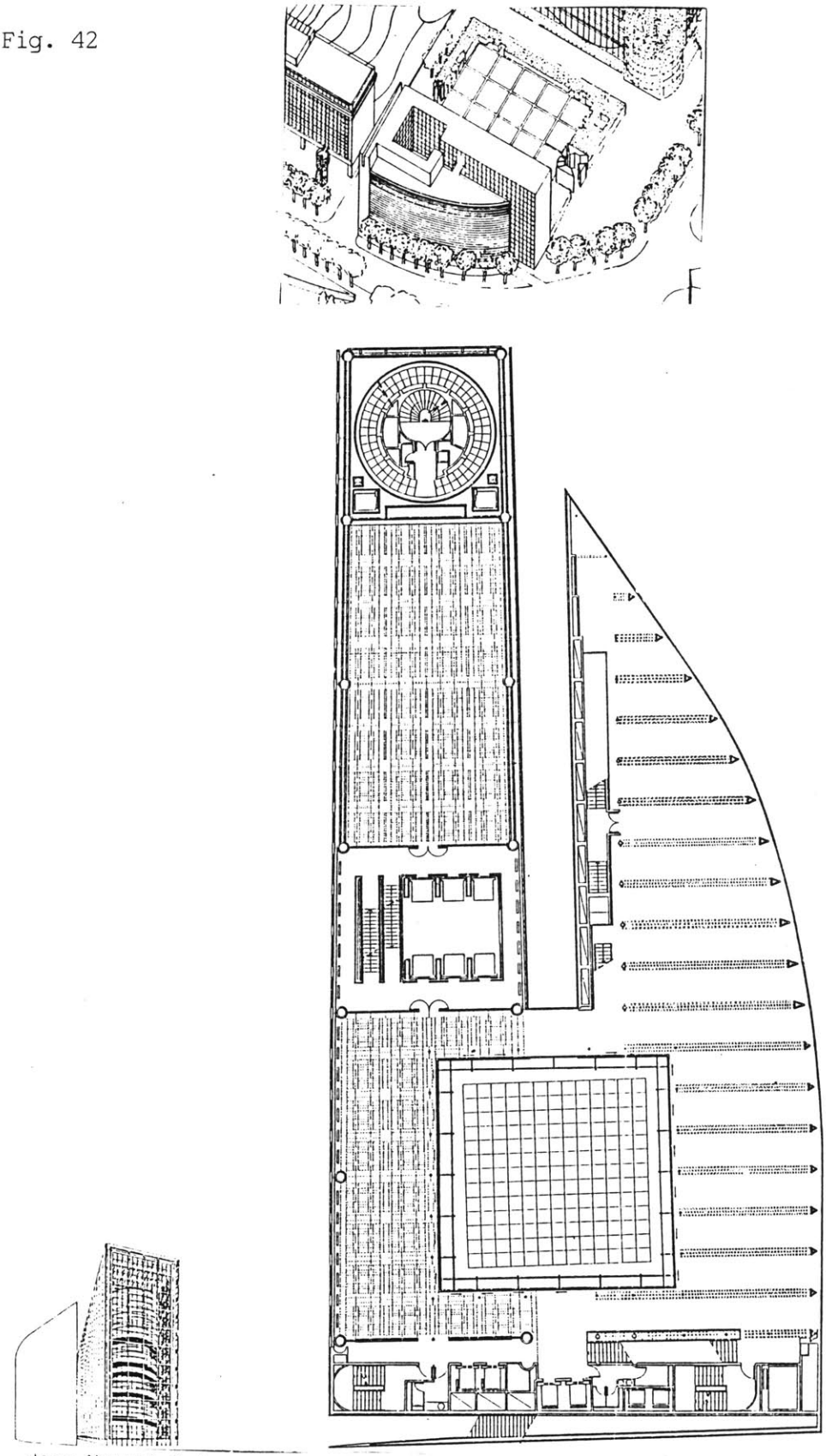
The Galerie Des Machines, built for the worlds fair of 1889, in Paris, realized for the first time on a large scale the full innate possibilities of steel construction. Structural engineering had come into its own. It had created a new type of building whose shape was entirely free from traditional architectural influence. The Galeric Des Machines freed itself completely from architecture.

In so doing it made way for a new architecture. This brought steel construction to a climax (Garnier and Perret were inspired by works of engineering), both of them tried to bring about a closer relationship between architecture and the new structural concepts. They were however classical academic architects and could not free themselves from the impact of their traditional education. It is important to realize here that there is a distinction between architecture dominated by structure, and one that incorporates technology in a currently viable fashion. It is this distinction I wish to make evident through my investigation.

Nouvel and thus the present generation is facing the idea of architecture at a different level of understanding. He characterizes his architecture as 'intelligent', and 'communicative'.

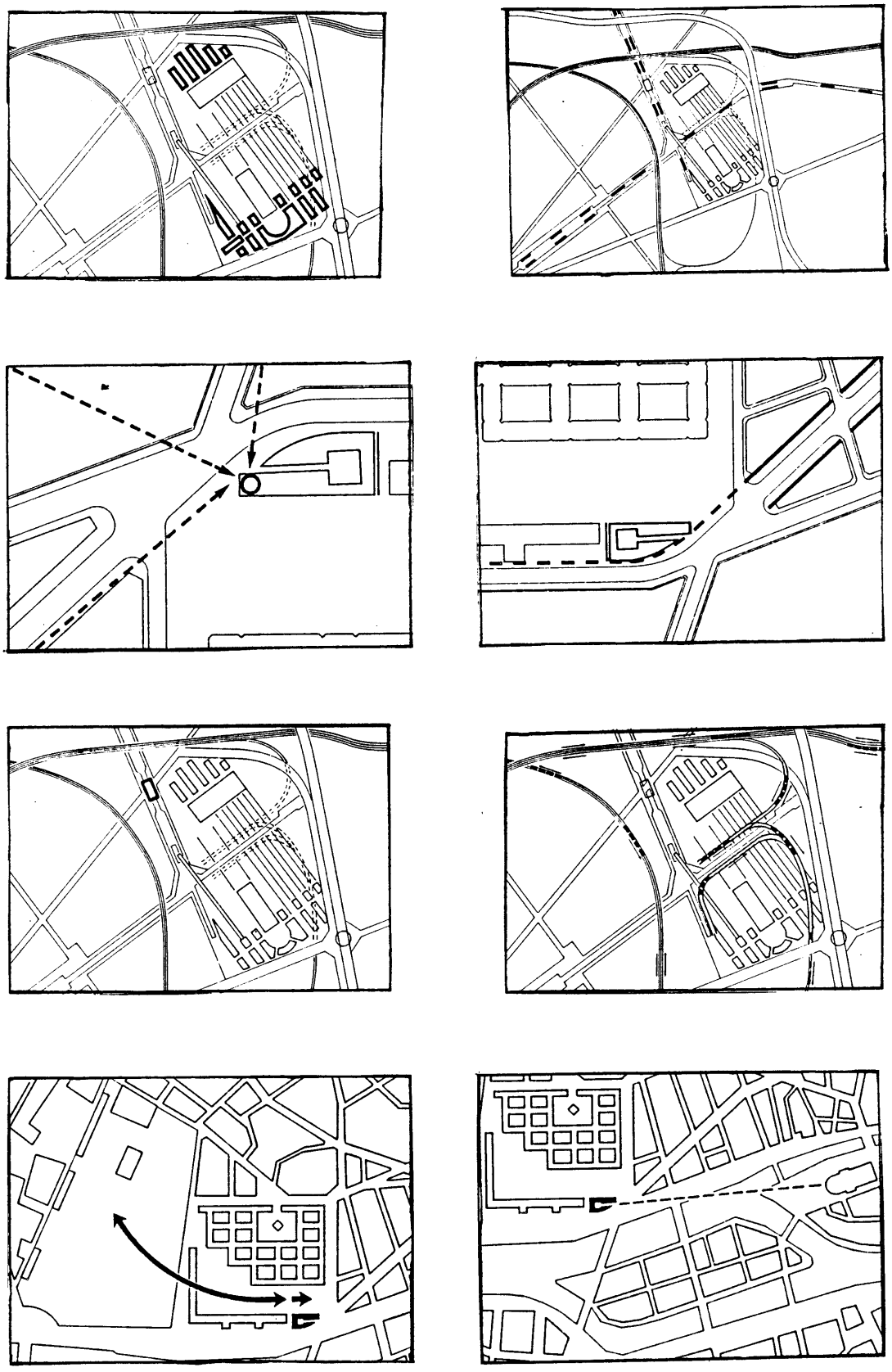
An architecture that deals with the talents, the aesthetic and practical pre-occupations of an era. He believes in an architecture that is alive and dynamic and adheres to Foucault's predilection of historic moments of rupture and discovery. The essential elements of what there is to say, to prove, is found in conditions of discontinuity. Nouvel, rejects primary and redundant symbolism. His work aims to discover a new language for architecture. For him architecture that looks back ot history for

Fig. 42



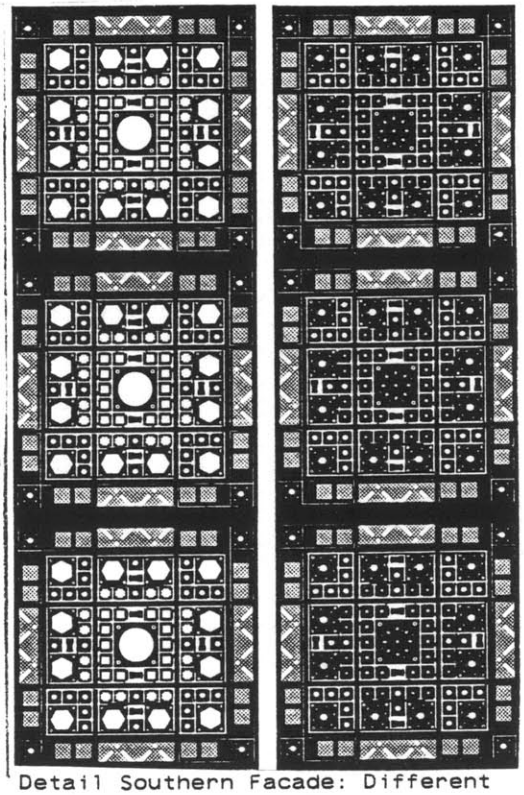
Jean Nouvel & Assoc: Arab World Institute, Paris

Fig. 43

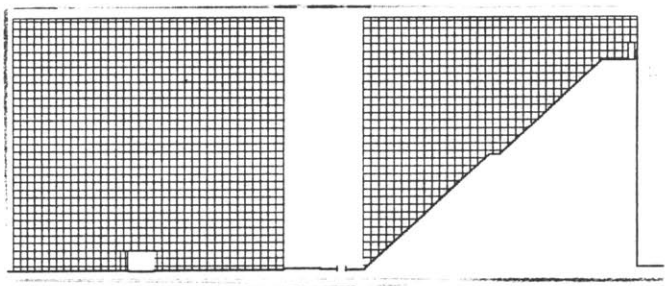


Jean Nouvel & Assoc: Site consideration

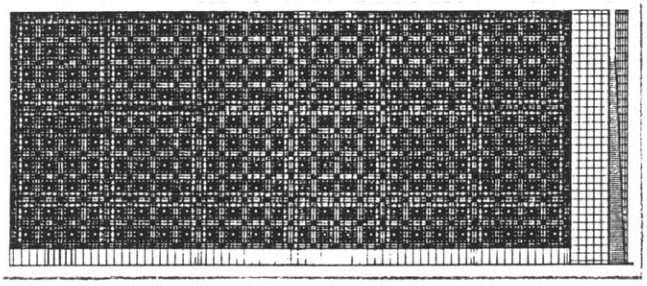
Fig. 44



Detail Southern Facade: Different positions for openings



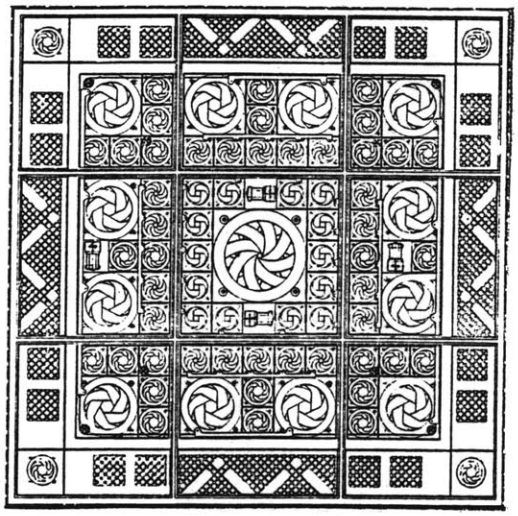
Elevation and cross-section of eastern stairway

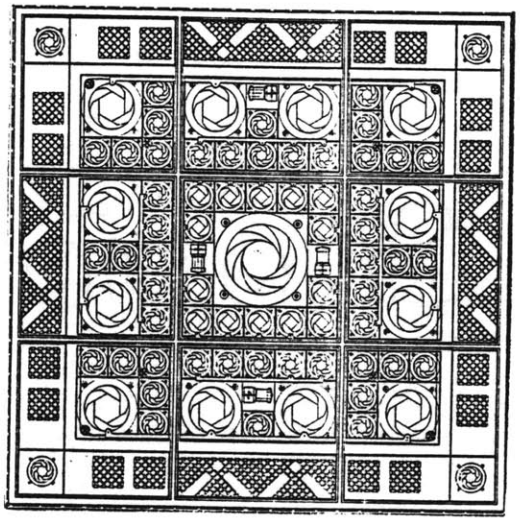


South Elevation

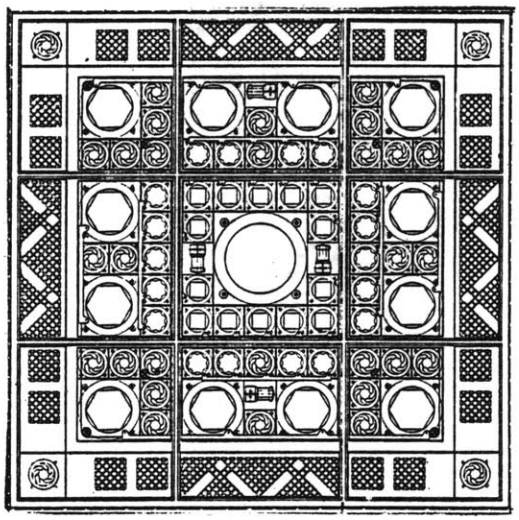
Jean Nouvel: Arab World Institute

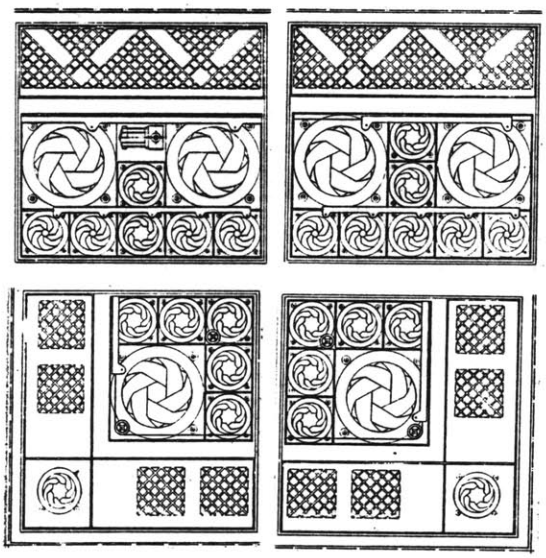
FIg. 45



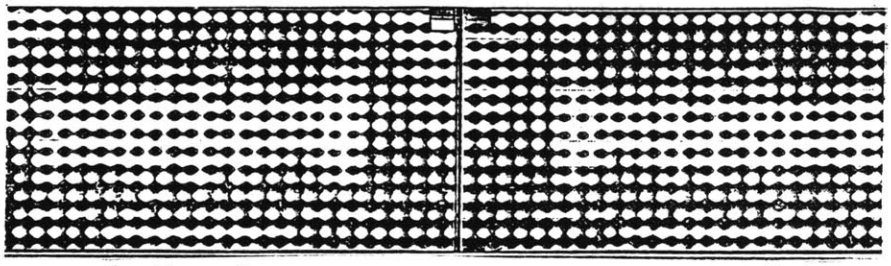


The walls are pierced by light through the 'mashribiya' like openings. The geometric motifs are based on the circle, square and polygon which are influenced by traditional islamic decoration.



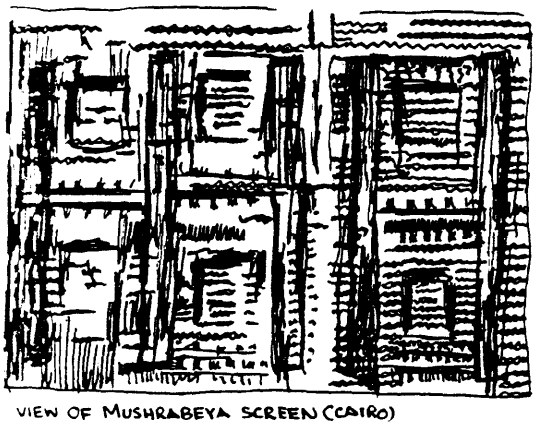


Different positions of openings

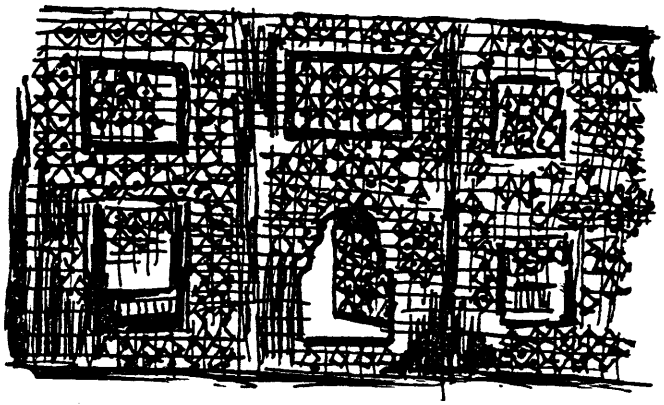


Southern Facade: Different positions and openings

Fig. 45-A

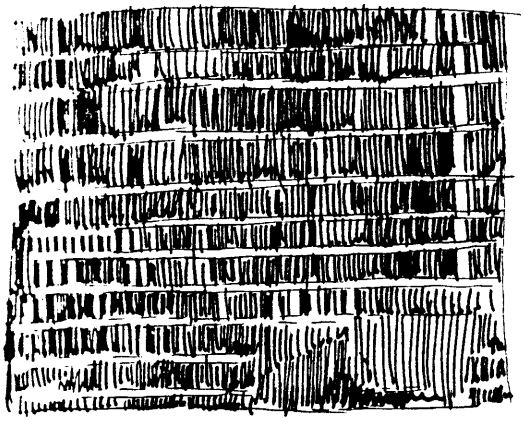


VIEW OF MUSHRABEYA SCREEN (CAIRO)

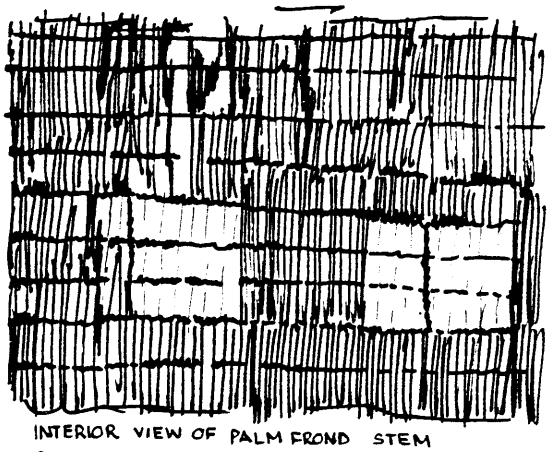


'The Mashrabiya', Traditional Islamic Window Design

Fig. 45-B

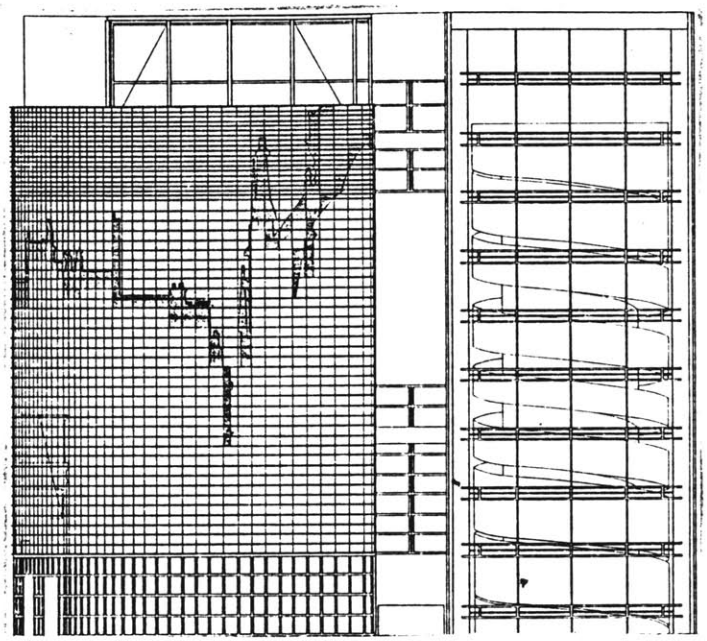


VIEW OF PALM FROND STEM SCREED.
APPEARS TO BE TOTALLY DARK GIVING PRIVACY (DAY)

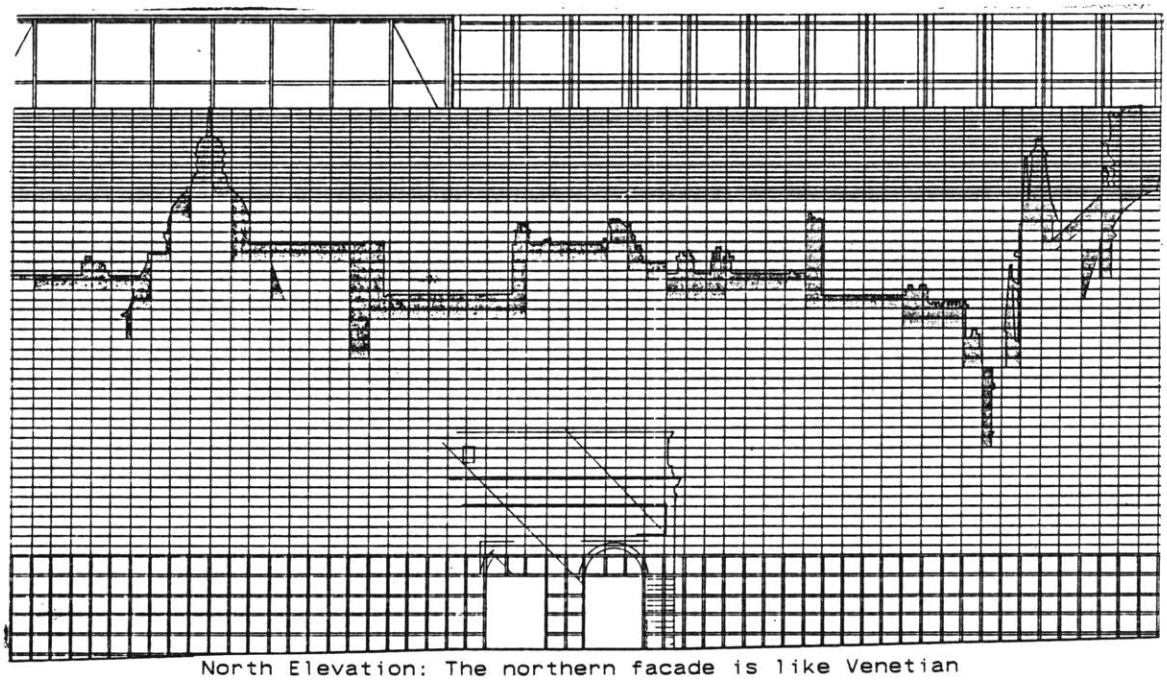


INTERIOR VIEW OF PALM FROND STEM
SCREEN FILTERING EXTERNAL BRIGHTNESS

Fig. 46



West Elevation



North Elevation: The northern facade is like Venetian
Glass store, 60m. long.
Jean Nouvel: Arab World Institute, Paris

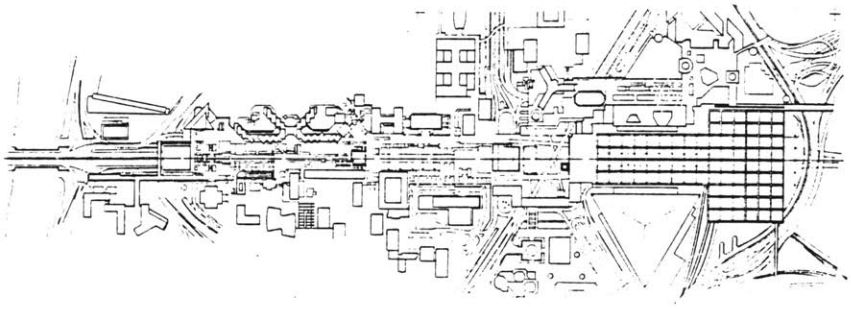
inspiration is mummified and not worth paying attention to. For him architecture is more a petrification of a moment of Imagination.

I would like to refer to his competition winning design of the Arab World Institute in Paris [Figs. 42 & 43]. The design transcends boundaries of cultures by exploring the form as a series of contextual juxtapositions. It is essentially a dialogue of contradiction between occidental and Arab cultures. Its emergence can be seen as the creation of a symbolic signal.

Behind differentiated forms the contrasted facades and co-ordinated, implacable geometry, organize the internal and external surfaces, horizontal and vertical. In elevation A, architecture becomes a frame, perhaps the most contemporary expression of a machine [Fig. 44]. It is at the same time mathematical and abstract. The south elevation is composed of a series of vents that open and close (see figures) with the intensity of natural light and in effect become a large abstract screen that is constantly dynamic. The special configuration for each square was inspired by "mushrabiyas", traditional ornately carved windows, symbolic of Islamic architecture.

The entire facade becomes a screen of varying gradations [Figs. 44 & 45]. The northern facade made of reflective glass is diametrically opposed. The image of classical Paris is represented in silhouette on it [Fig. 46]. With the changing light these shadows and reflections take on different intensities. The juxtaposition of these facades creates an intriguing set of oppositions. One side reflects a traditional rigid city, the other acts like a mechanical screen. This creates a sense of excitement to our understanding of architecture. This building is exploring a new vocabulary in design, one that re-defines the use of technology through a major intervention of contradiction and opposition.

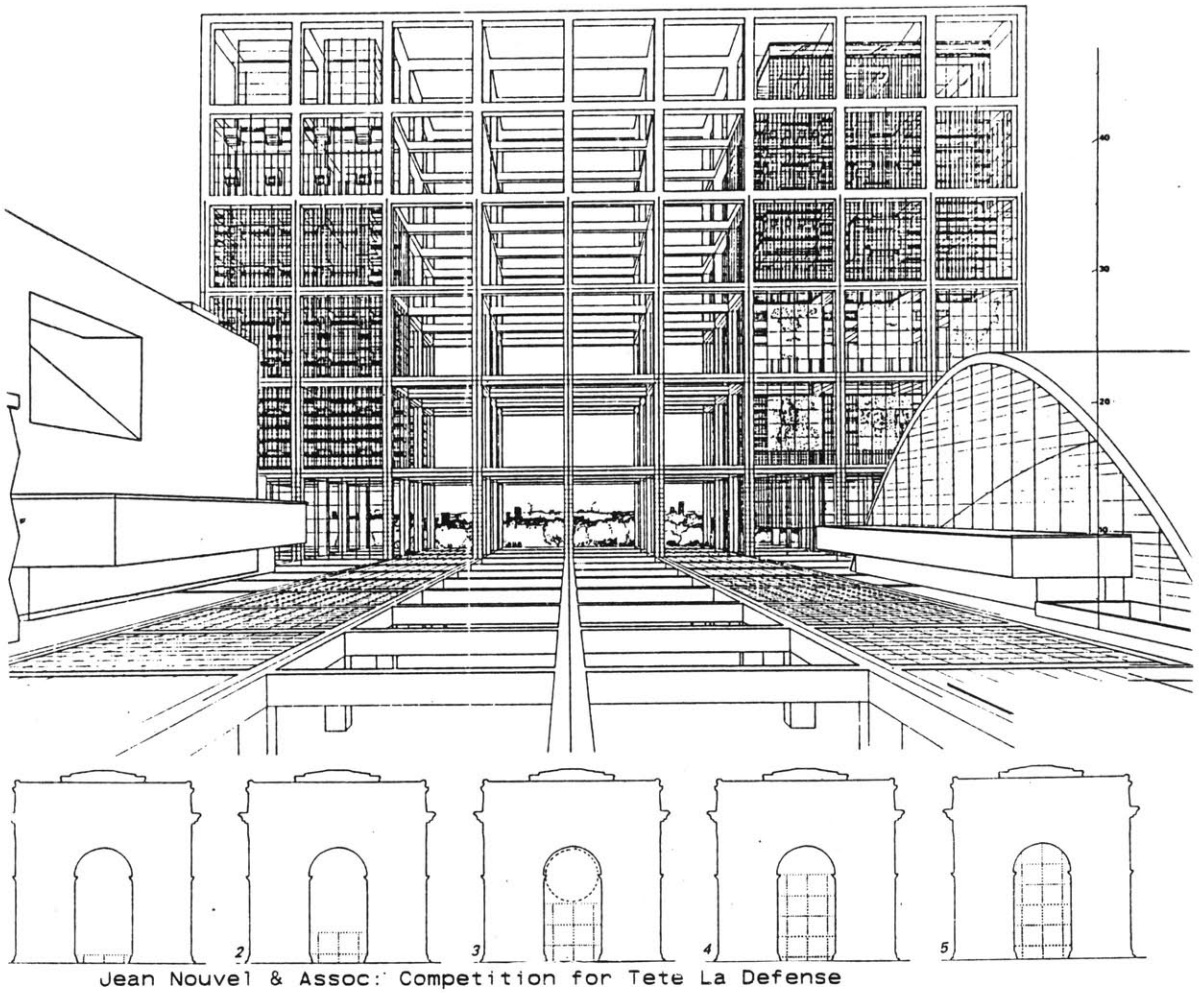
Fig. 47



Site Plan: Reflection, Transparency, Abstract image overlayed on a geometry
The sky is an unfinished canvas

Jacopo da Pontormo. Le ciel est une toile inachevée.

Reflets, transparences, une image abstraite sous-tendue par une géométrie.



Jean Nouvel & Assoc: Competition for Tete La Defense
Quadrille like Grid: blurred geometrical frame
The horizon becomes variable as a function of distance and time

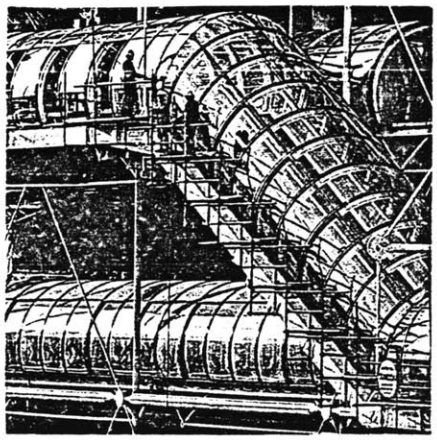
For me this building suceeds in breaking accepted norms, and steps into the realm of a re–defined future. For Nouvel, the idea of architecture is not one of spatial or formal definitions but related to the realm of experience and the modes of production that help produce it: programmes – users – context, in so doing it begins to blend fantasy with reality.

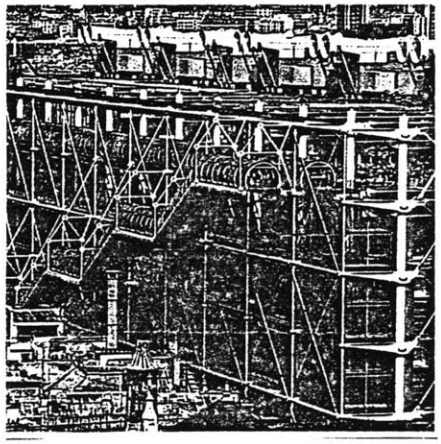
'Creation', can exist only if it is justified. But the justification calls for an irrational logic, like all true architecture. For him architecture cannot be considered without a re–definition of what is art today. The creation of an absolute aesthetic code is impossible. Nouvel's architecture is a conscious turning away from dogma and doctrine. Architecture and theatre can therfore become analogous in that an object essentially creates the space for a piece of work. As a stage set, architecture must be impregnated with a philosophical idea. The polemics of architecture must make use of provocation and paradox. Modernity has to take the risk of invention. It must use the potentials of the present, to connect information, to create synergy between the latest data and the most remote.

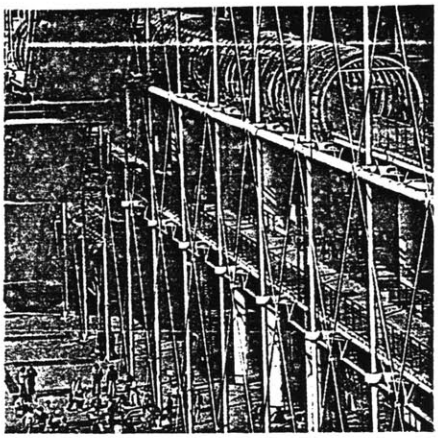
It is to make from the imagination a tool to shape the real world. 'Action' is defined as part of a moving borderline of the present which is continuously unfinished. The future of architecture is not 'architectural' anymore, it relies on intervention and contribution from varied disciplines. As the boundaries between them are becoming invisible, there is a gradual blending of form and function in architecture.

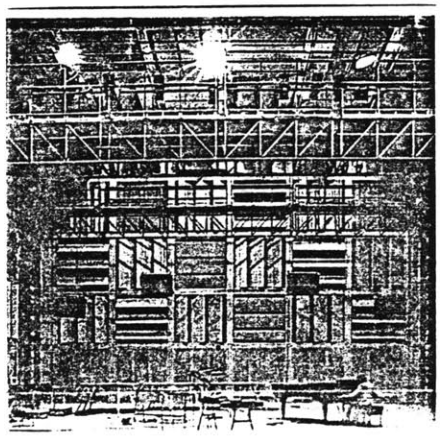
In his project for the communicatons center competition Tete La Defense – the building and the sky act as mutually interdependent frames. The sky becomes a constantly changing and unfinished canvas. The perforated and translucent structure of the proposed project, becomes the texture of the sky. Barely readable, disappearing with the altitude.

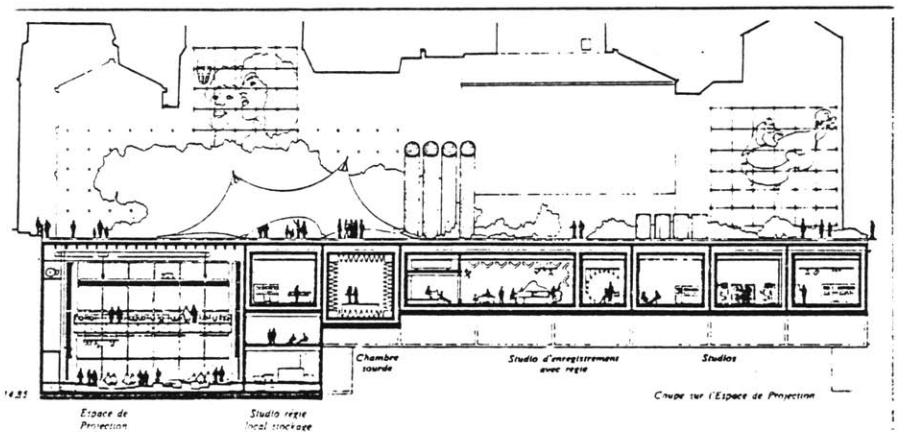
Fig. 48











Piano & Rogers, 1971-77 George Pompidou Center, Paris

It creates different perceptions from various places. Light and shadow have a great role to play. The central frame as it becomes visible in the historic axis becomes the negative of the cubic buildings in the surroundings.

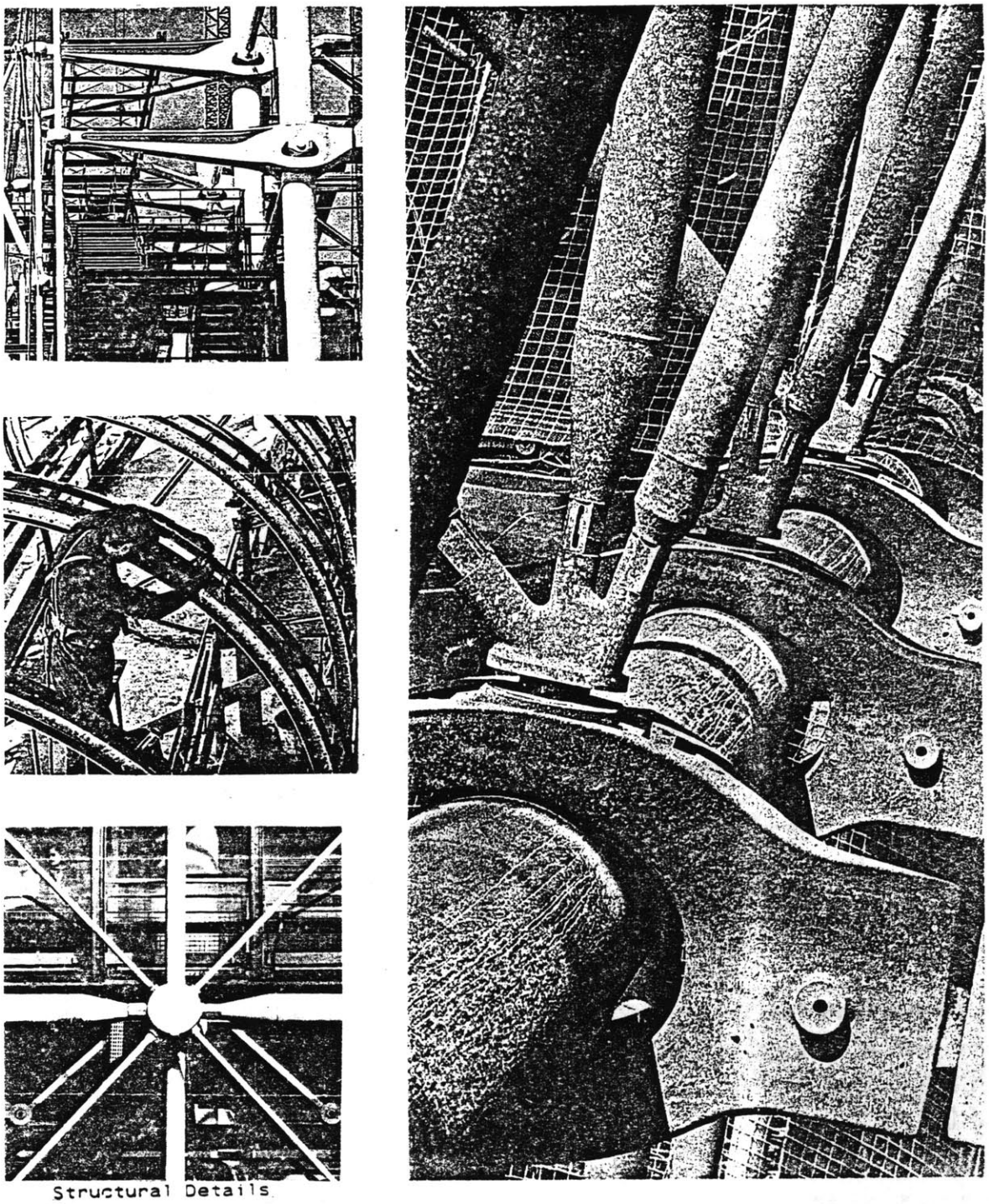
There is an attempt to create a balance between an abstract vision from far away and detailed vision from nearby, to understand the complexity of the structure. The principle volume, is a large space called 'cathedral', where information is projected on a large screen. Exhibition spaces are organized on large terraces and platforms. The center of the building is perforated, the empty volumes make a lighter structure and create differentiated spaces.

This trend in architecture has moved far away from the static and classic to dynamic and content laden forms. We have reached the age of 'Experimental' architecture. It has moved from the realm of product to that of process. The experience and reaction to its form is more alive and radically different from earlier interpretations. This is a breakthrough. It may not be perfect but, it is a step forward, not just a retrogressive memory of the past.

Renzo Piano: Piece by Piece

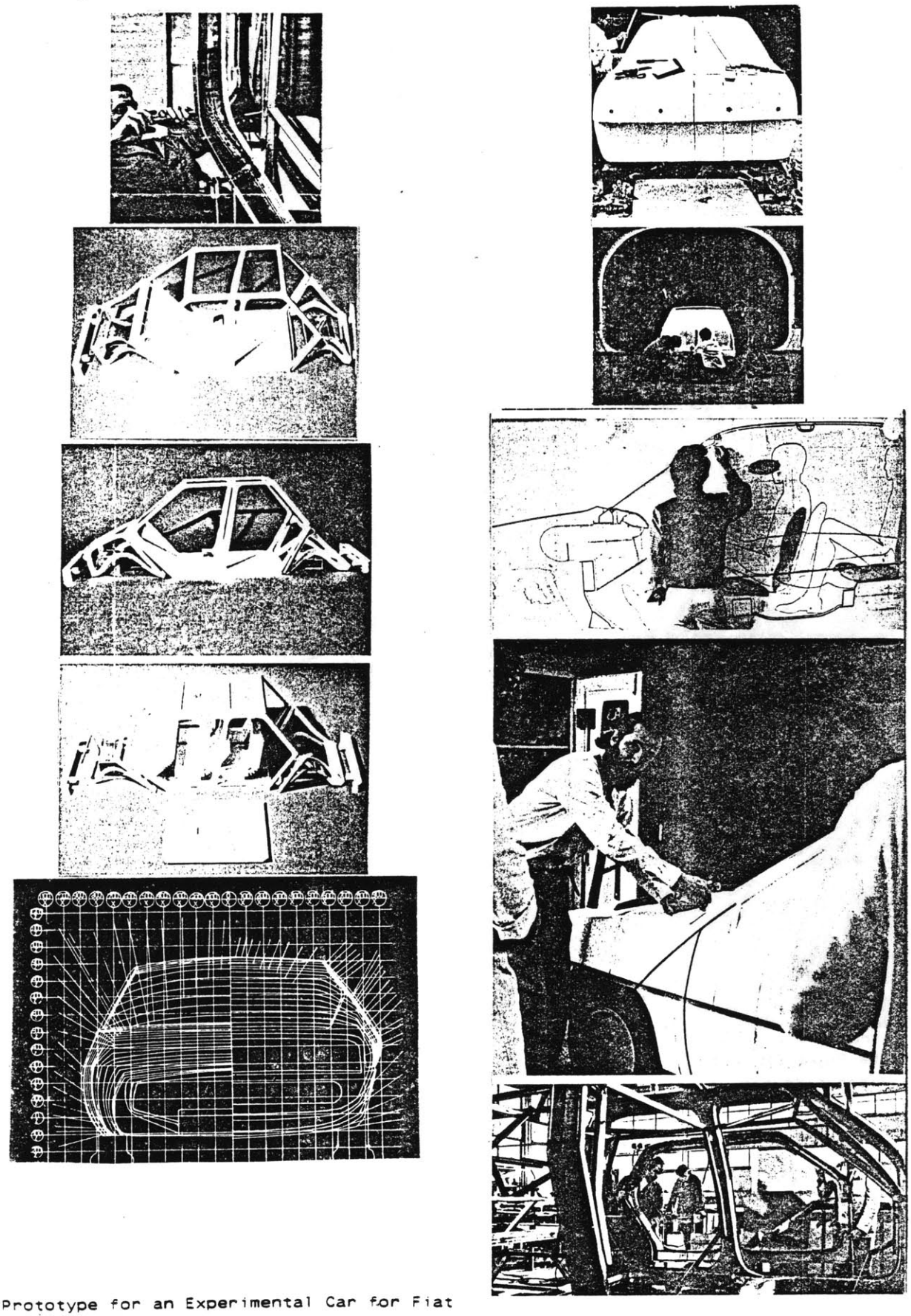
Here, things are approached "piece by piece". This is the architecture of Renzo Piano. Through experimentation he has opened up new perspectives in reactivating auto-construction and processing the industrial object with a scientific approach. His architecture explains the move from static to dynamic in almost contradictory fashion. In his work he has explored and manipulated all three techniques and possibilities of materials. He rediscovered the dynamic relationship and the qualitative motivations that exist betweeen the various building participants. The Beauborg center was an opportunity to implement the sum of his acquired knowledge [Fig. 48]. Piano's

Fig. 49



Structural Details
The Beauborg, Paris
Piano & Rogers, 1971-77

Fig. 50



Prototype for an Experimental Car for Fiat

approach consists in calling upon various scientific fields and production systems to introduce into architecture and to simplify their implementation and operation to create not only new procedures, but also forgotten ones, while simultaneously expanding user possibilities.

Piano simply calls himself a 'constructor'. ' The Beauborg is a representation of "collective memory", it is made out of thousands of small parts, the scale of the building is broken down, reduced to small scale elements [Figs. 49 & 50]. Through its largeness it actually presents a quality of transparency and scale reduction. Piano never believed that he was industrializing the building. The Beauborg for him, is made of very sophisticated parts, manufactured by artisans in old fashioned workshops. So we have here re-definition of the concept of 'artifact' and 'artisan', that fact that technology and art can blend.

Renzo Piano's IBM project was, a foldable building that could be transported to any part of the world. This was the idea of a building being dynamic but in the sense of physically taking it apart, and transporting it to another country. Moving on to a further definition of dynamism, I would like to mention his theatre and public building currently proposed partly in Genoa, Italy and partly in New York. The building effects exists in two pieces, each one in a different country. These pieces will be connected together by a satellite called Colombus, which becomes functional in 1990.

This is a static expression of dynamism, which sounds like a contradiction in his own work. What I would like to suggest here is the change from the traditional notion of dynamic, as one that would be moved physically, to a new dimension, motivated by the communications and electronics revolution. The impact of this is being felt in

architecture, where one building can exist, divided into two halves on two different continents.

And so we are find a distinct trend towards experimental and dynamic architecture. There is however an inherent contradiction in popular consensus of 'what' is actually breaking trends, as exemplified by the architecture of Norman Foster, especially his 'Hong Kong Shanghai Bank'. Foster's work does not look towards the future, it embodies and exemplifies a language that is reminiscent of the not only visions of the past, but also the megastructures of the 60's.

PART II
OPEN SPACE

OPEN SPACE

Space and Object:

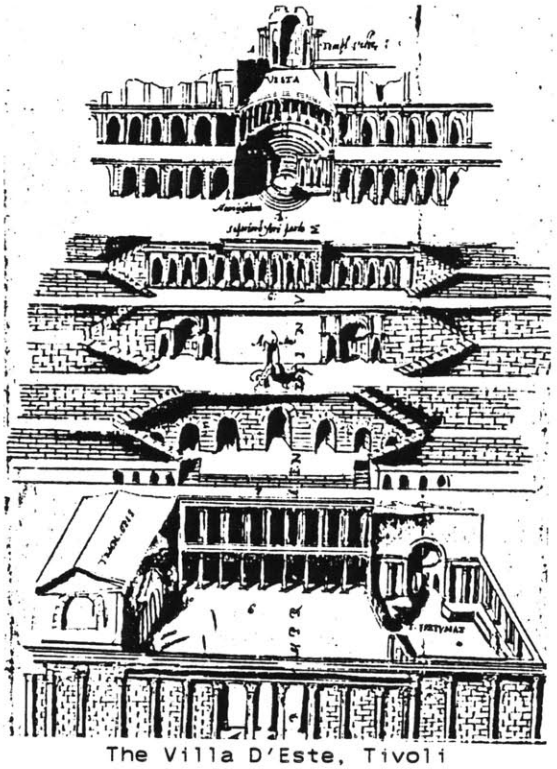
Changing Nature of the Park

Man creates around him an environment that is a projection into nature of his own abstract ideas. An interpretation of what is constant. Babylon rose to power in the 3rd millenium B.C.. Babylon can be described as the mother city of gardens and the manufactured landscape. Only the remains of the base of the Tower of Babel are still visible. The terraces of the hanging gardens, built between 604 and 562 B.C., above two rows of seven vaulted chambers, may have risen in sequence to upto 75 feet. The ceremonial approach to the summit of the Ziggurat has the 18th Great landscape stairway. Plato was profoundly influenced by the geometry of the Egyptians, Aristotle, logician, bioligist, put more stress on understanding the world, and the human mind, as it actually existed. Plato was the artificer, Aristotle the ecologist in a world in which individual and thinking man had arrived. The search for perfection through geometry began with Pythagoras, of Samos 6th cent B.C. who first discovered a relation between spatial and musical proportions. Plato considered that cosmic order and harmony were comprehended in certain numbers contained "not only all the musical consonances, but also the inaudible music of the heavens and the structure of the human soul.

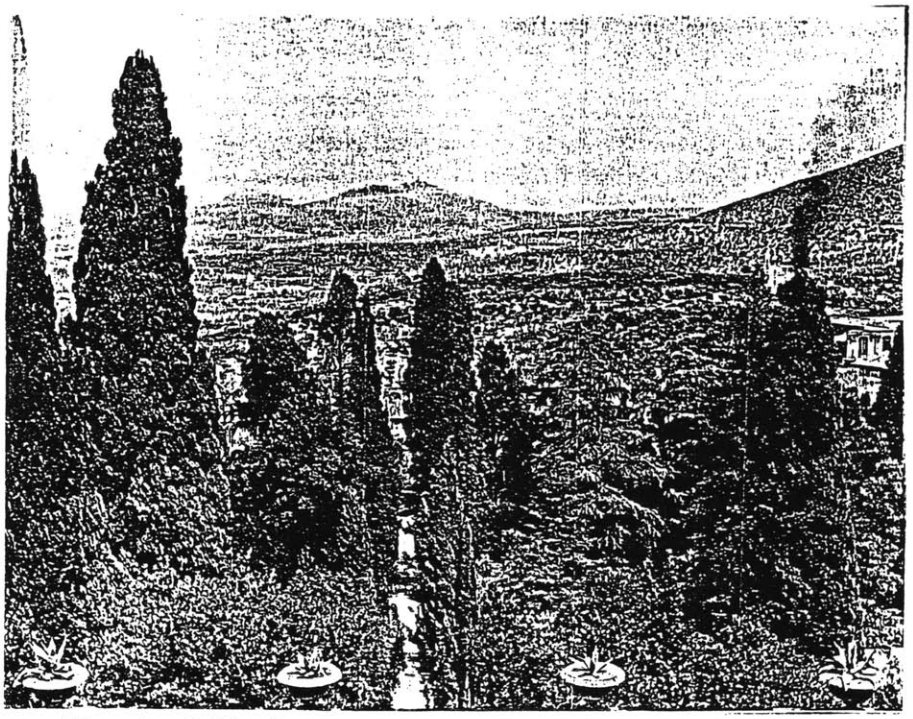
City and Garden as powerful symbols

Views of the countryside were part of the design, rather in the manner of the classic frescoed wall. Garden and landscape were not yet physically integrated. The fundamental purpose was to create shapes that responded to the *intellectual* mind searching for *order, tranquility, and stimulus,* giving dignity and status to the human himself.

Fig. 51



The Villa D'Este, Tivoli



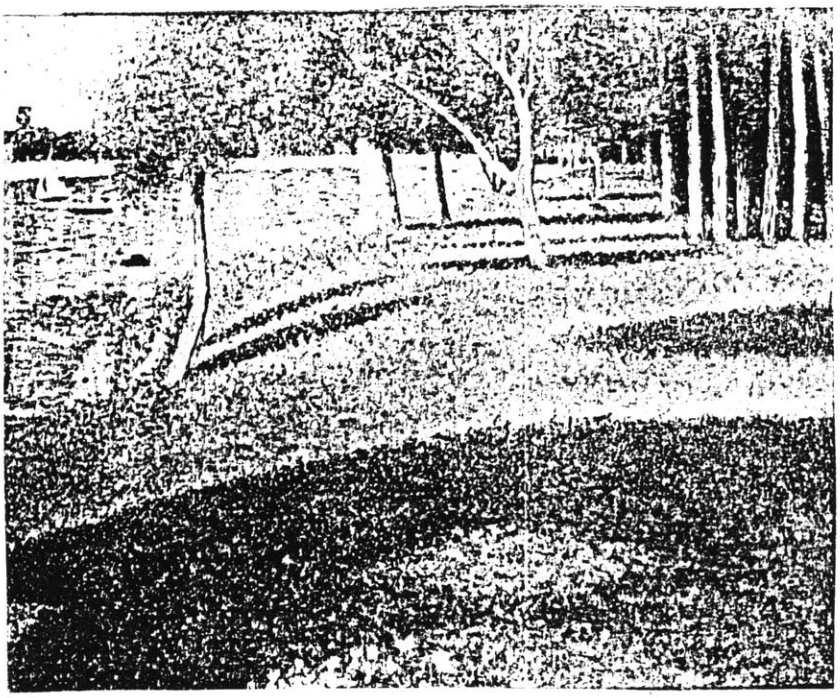
Clearly defined transition between garden and landscape

Alberti and Palladio caried the theory of platonic geometry to finality, giving harmonic proportions not only to a single three dimensional room but a series of rooms, which though not visible totally at any time, would strike the mind as a single harmonic chord. These properties were absolute, stable and finite and were the climax for the renaissance search for perfection.

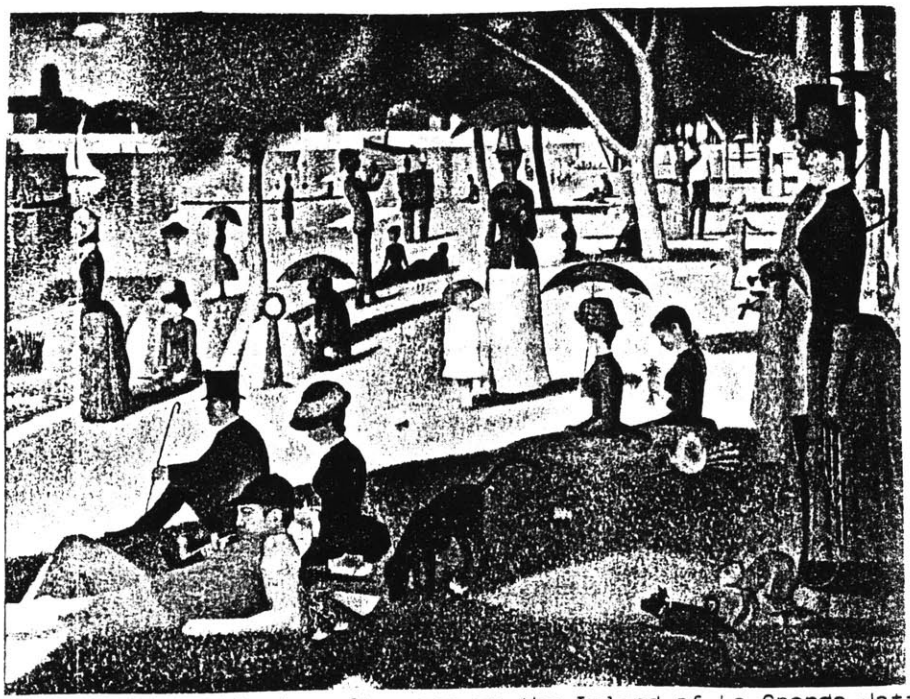
The first true renaissance villa was created for the Medici. The house is projected along the hillside into the open air [Fig. 51]. The gardens are still, formal and regular, but the surrounding countryside has been brought into the design. Leaving symbolism, the garden was becoming a setting for pleasure and philosophical debate. At this point astronomical discoveries, combined with the questioning of religious dogma had thrown doubt on the foundations of the existing order and beliefs. The second half of the 16th century saw the transition finite and infinite from one philosophical concept to another. From the classical finite to the baroque infinite. The expression of the finite is factual, that of infinity can only be imaginative. It was technically based on *illusion* and the newly found art of the theatre.

Externally and most notable in landscape design, was an awareness that man was now only a part of a swirling complex that embraced both rocks and water and the heavens, that established the idea that an *object* was not an *object in itself but related to others in an infinite chain. The synthesis of the unit as a whole entity and as a part of infinity had now begun.* After classicism, with its world of order and harmony, came an era of tension, ambiguity and fear. The French painters of the second half of the century initiated modern art, foreshadowed constructivist architecture and may well have been the pioneers of ecological landscape design. The impressionists led by Nicolas Poussin and Paul Cezanne (1839–1906) set out to find and express on canvas an inner meaning and order of solid form. Explanatory

Fig. 52



Premliminary study for 'Sunday Afternoon on the Island of La Grande Jatte'



Georges Seurat: 'Sunday afternoon on the Island of La Grande Jatte'

of the mass and structure of cubism was the disintegration of visual form and its re-creation into an art form. While Cezanne was concerned with solids, Georges Seurat (1859-1891) was concerned with voids and space [Fig. 52].

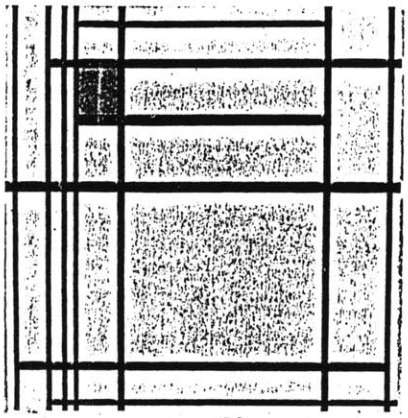
Claude Monet (1840-1926) penetrated into matter more significantly than any other impressionist. He struck at the root principles of classical composition, which are order and stability. His lily pool was a microcosm of nature in restless transformation. He was in spirit a Taoist and wrote:

> "My only virtue resides in my submission to instinct. Because I have discovered the powers of intuition and allowed them to predominate, I have been able to identify myself with the created world and absorb myself in it."

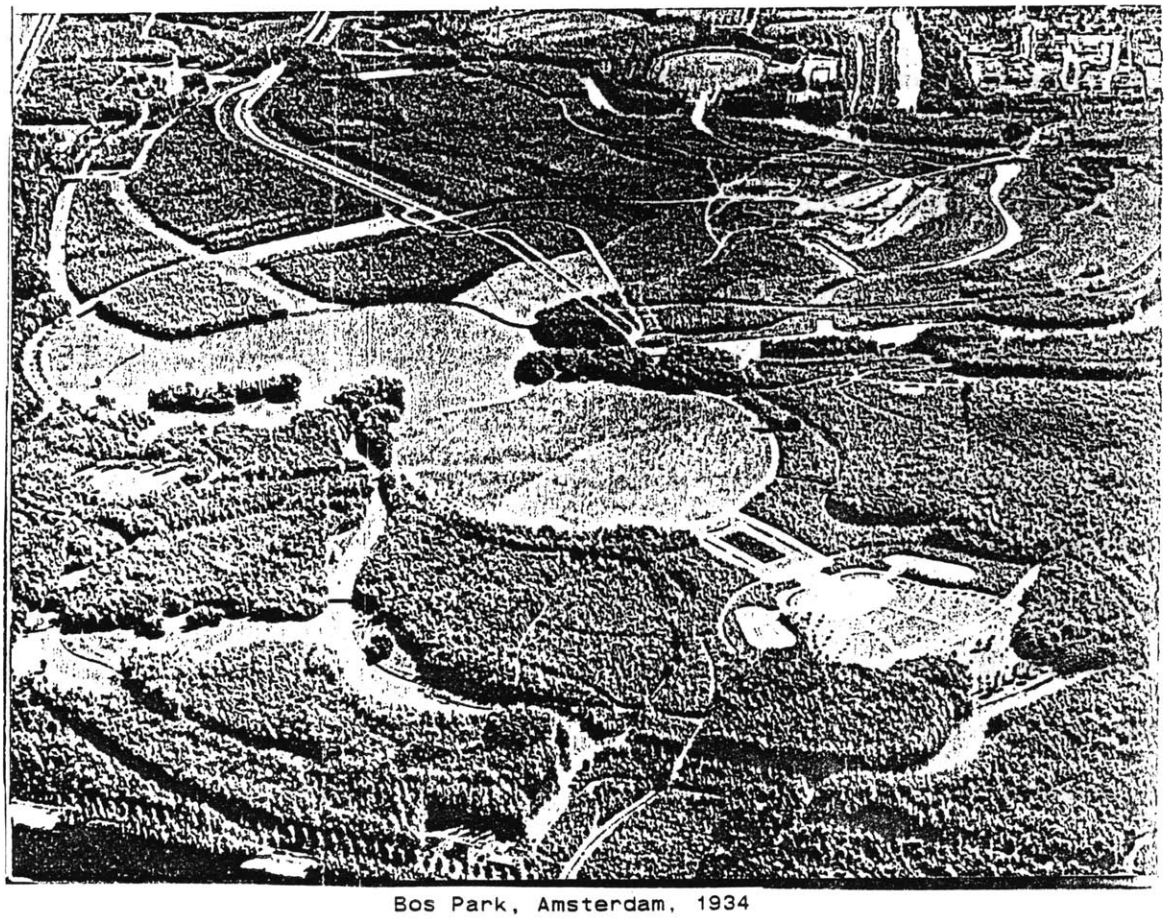
It was the idea of conceiving 'nature in restless transformation' that is of significance here. This was the root of the notion of giving order to chaos, and thus resulted in a re-definition of order and stability. Much of what follows in this section, ie, tracing the change in the manifestation of landscape, has to do with the development of the above notion. It was a turning away from the rigid and classical rules of composition.

The beginning of the century marked a further and critical attack upon fundamental beliefs. In 1907, Einstein's theory of relativity opened up a revolutionary concept of time and space. Philosophy itself could give little guidance as to the nature and meaning of the new universe, but the *struggle between intellect and intuition* was recognized. In the industrialized countries, where confusion and chaos ruled the environment, two different creative forces were germinating independently, one from another. The first was the science of land use in the interests of the community as a whole, the other a new art form. The former was concerned with urban design, land and landscape planning, and the conservation and proper exploitation of natural and historic resources. The latter arose from the constructivist movement in art before the first World War. It was functional and international architecture based on machine

Fig. 53



Piet Mondrian: 'Manhattan', 1937



Bos Park, Amsterdam, 1934

production and truth to factual purpose, but contained within it a profound search by the individual for a new liberalization of space and consequent study of machine proportions. Thus the *role of landscape design as synthesizer between universal and particular was recognized.* Thereafter the concept of comprehensive landscape planning had finally been accepted. The purist *constructivist movement,* that was eventually to become dominant in the world of building, originated almost simultaneously in Russia, Holland, Germany and France. It was not until after the first World War that its ideas began to supersede those of the Ecole des Beaux-Arts in Paris. At the Bauhaus arts of all kinds were synthesized and matematicalized, those arising from nature excluded. The contemporary way of thought of constructivism is symbolized by the Dutch painter Mondrian (1874-1944) in a series of abstractions in which a realistic tree loses its identity to become geometrical.

The modern park for active rather than passive recreation was pioneered in Europe by the plan for Bos Park, Amsterdam begun in 1934 [Fig. 53]. The essence of Dutch landscape was an austere flat geometry that is reflected in the work of Mondrian, whose painting of abstract form as in 'Manhattan', was a basis for the constructivist movement in thought and work [Fig. 54]. Bos Park seemed to be an escape from this, the plan was the outcome of a team of professors, botanists, biologists, engineers, architects, sociologists and town planners, a true multi-disciplinary synthesis. The shapes, which were carved out of traditional drainage techniques gave the park its dynamism, for there is little variety in its groupings.

Elsewhere, city plans were based on the teachings of the Ecole des Beaux-Arts in Paris, culminating in the monumental project by Daniel Burnham in Chicago in 1909. In America Frank Lloyd Wright emerged from the arts and crafts movement to be the natural opponent of Le Corbusier in evolving a modern domestic art. Springing from

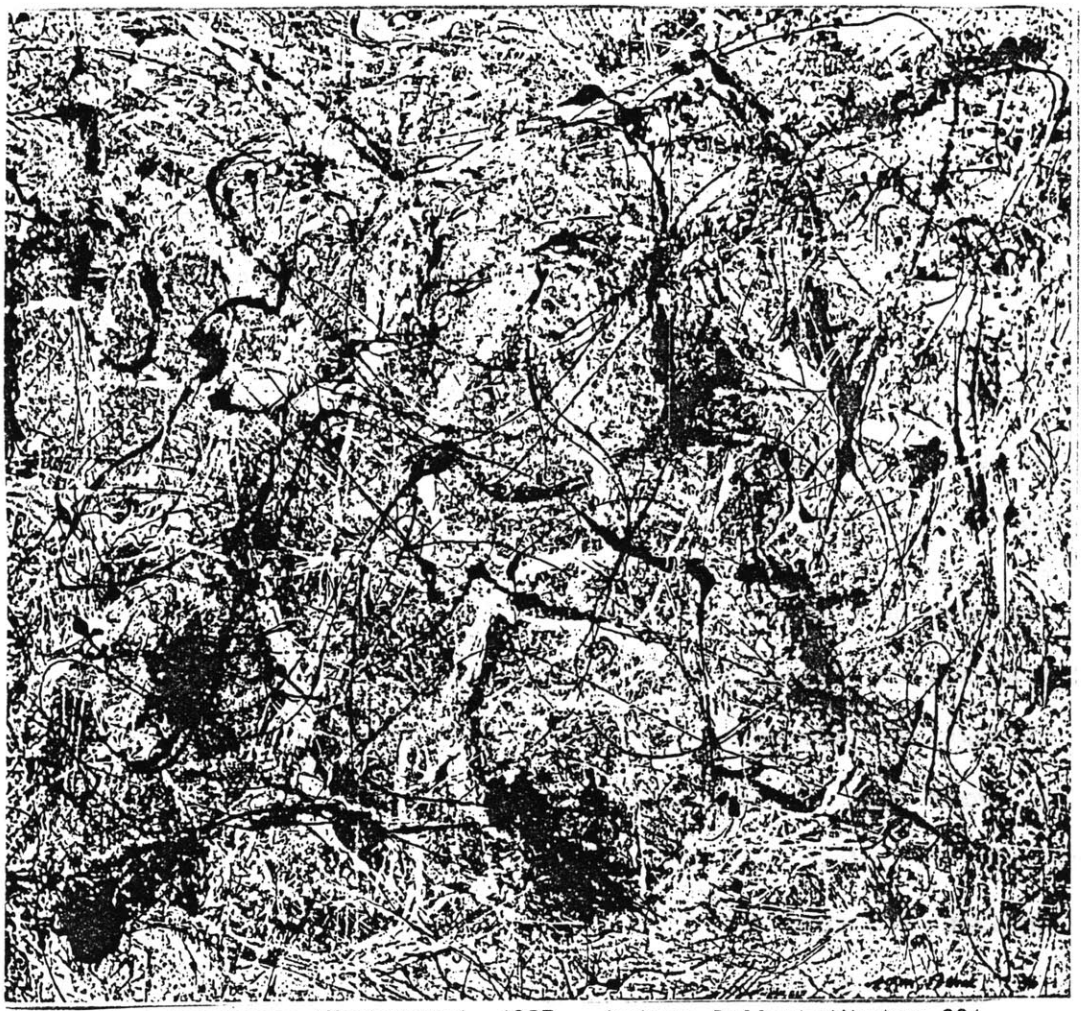
this was the first serious attempt to rationalize the concrete jungle that exemplified cities like New York, the creation of *the Rockefeller Center.* With *the development and growth of cities* the era of the great private garden had passed, and its place was taken by individual gardens and collective parks. An appreciation of the true *value of the natural environment had come into its own.* There was an instinctive desire to participate in it as part of the ecological system and as a release from modern stress. A common will to resolve the incompatibility of modern living and fundamental biology.

One of the criterias for developing these collective green spaces as lungs for the city *was the preservation of the identity of the individual* as a life force within a vast inanimate machine which it had come to depend on. The means towards this end was the core of landscape design. As far back as 1919 Joseph August Lux, in "Der Architekt" wrote:

> "The art of the garden is the most *manifest and felicitous negation of* nature, to the natural. In the garden, *art creates an antithesis to nature using plants according to architectural principles it fortifies the expression of human illusion".*

One could go back to the drawings of Louis Durand illustrating 'L'emploi des objects de nature dans la composition des edifices' to cultivate the idea of the existence of a continuity of reflection on the little–explored theme of architecture and green space. And to further expound on the many divergent directions it is taking today. *The Garden became an important element in transforming the city of the 19th century.* Ever since the fences of royal parks were knocked down, "the urban park" was instituted as a symbol of the re–appropriation of the city by the people. On the one hand the park was a lung for the city's dense organism, on the other hand it was the presence of distant nature that one could escape to – it had no link or connection with the city, other than the fact that it was contained within it.

Fig. 55



Piet Mondrian: 'Manhattan', 1937 Jackson Pollock: 'Number 28'

Passive to Inter-Active

The *transition* from *the landscape park* of the 18th century to the *urban park* of the 19th century was influenced more by its modes of use rather than compositional principles and led finally to formal transformations. With the *origin of the urban park we see nature becoming a part of the city.* The first subconscious representation and interpretation was made by Jackson Pollock in "Number 28", in which he dealt with a restless world in perpetual motion [Fig. 55]. This painting confronts us with a visual concept organically evolved from a belief in the unity that underlies the phenomena among which we live. *Void and solid, human action and inertia* are *metamorphized* and refined into the energy that sustains them and is their common denominator. His forms and textures germinate, climax and decline, coalesce and dissolve across the canvas. We are presented with a visualization where the end is only the beginning. Once again we see the origin of representation, that has come to terms with the idea of tension and conflict.

The emergence of a modern materialistic landscape out of a historic one brought with it several conflicts. Especially those of scale between the machine and human beings. The confusion and juxtaposition of a fabric heavily influenced and decorated by a fast moving world full of technological advances. The urban park seems to exist specifically for refuge and an escape from reality. Action seems to supersede contemplation. We move *towards an interactive landscape (The City comes into the open)* And so the park becomes an indispensable ingredient in the modernization of the city. To the extent that it almost becomes an interactive network of information.

Needs today are far more complicated than ever before. There *has emerged an alternate and new tradition* in the way we conceive and create our open spaces and urban parks. *This tradition seems to be based on 'the expression of human*

illusion and the insertions of technology', resulting in a state of technomorphia. Most urban parks today are highly underused, suffer neglect, inadequate maintenance and vandalism. They are increasingly being ignored by the public and *are in a state of crisis. Central Park in New York,* the first urban park built in the United States has remained mostly unchanged, since its opening in 1879, from the original landscape concepts by Olmstead and Vaux. It was meant to be a parkland that simulated the countryside for a brief escape from the ever-rising city around it. It, however, is also a place that is associated with violent crimes, drug addiction, sexual perverts and vagrants. The park as a result is seldom used because it is too dangerous to venture into it. This is primarily due to the fact that the nature of society and the way cities function has changed radically. It has become dangerous because there is within it a lack of content to support an inter-active environment. A new interest has arisen regarding thought on these matters. It is prompted by a general *increase in leisure time.* Instead of insisting on the creation of *"more space", the question that* needs to be asked is *"more space for what purpose?"*

What is the 21st Century Park?.

People will use urban parks today if they are properly sited, if they are diverse and dynamic, filled with a sense of mystery and activity. Too many of our parks rely heavily on horticultural excellence within outdated designs. And so we come to the inevitable question of what an urban park of the 21st century should look like.

We are beginning to envision the park as a public space in which other things, besides nature are consumed and injected, essentially, the intervention of content in space. It moves away from being a protected oasis and turns into a vibrant, dynamic surreal vision of reality. I would argue, that today, reality has transgressed the bounds of definition. That fantasy and reality as exemplfied by

the chaos in our cities and, the diversity that *they generate has led things to a state of dynamic flux.*

Surrealism, Dadaism and Constructivism

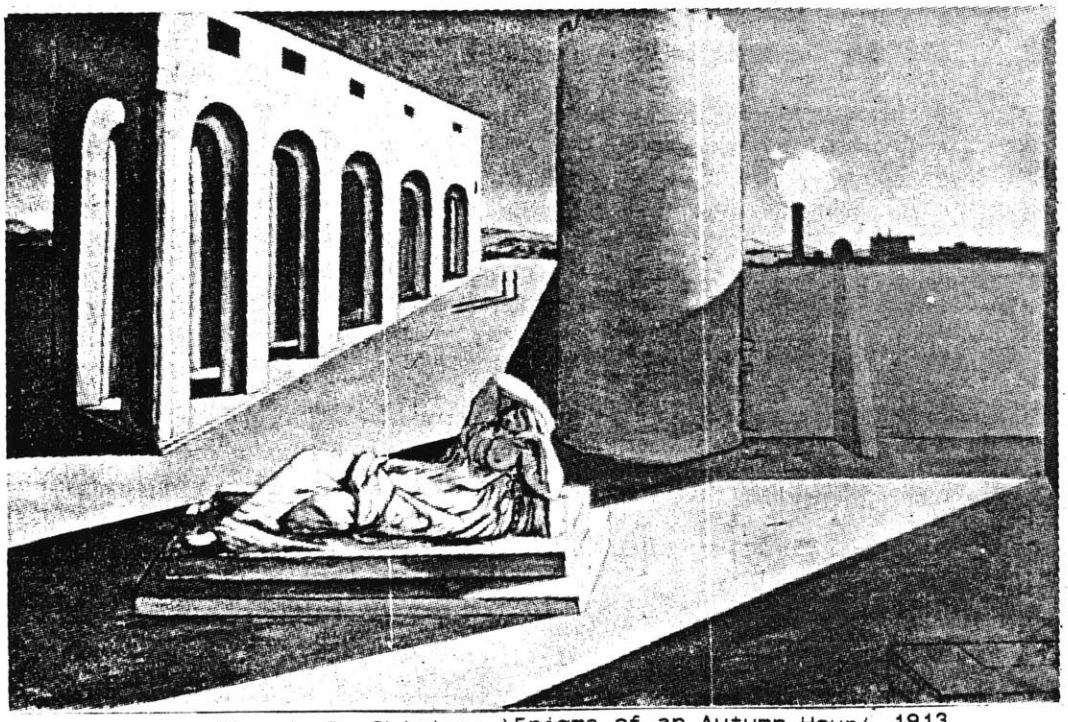
New relationships of the park to the city can be resolved in communication networks and informational grids. *Before I go on to describe this phenomena ie; Technomorphosis,* as it is actually taking shape today, evidenced in the proposals for the creation of Park la Villette, I would like to suggest a parallel in thought to *Surrealism.* The roots of this present dynamism full of conflict and contradiction can be clearly related in many ways not only to the spirit of movement described by the Constructivists but also to the Surrealists. Here we find a strange new synthesis of form, idea and space. "I believe in the future resolution of those two seemingly contradictory states, dream and reality, of surreality, certain that I shall never share in it, but too indifferent to my death not to taste, at least slightly, the joys of such possession. Following, its history since the Surrealist manifesto was first published in 1924, all attempts to reduce Surrealism to a set of principles and goals, such as automation, objective chance, transformation of the world and life, do not reveal the *primary goal of the movement, which was to reach an absolute point of reconciliation of dream and reality.* Surrealism does not present another artistic or political avant-garde, but a sub-terranean world of the whole of modern culture. And as Breton[1] says almost predictively:

> "The poet of the future will overcome the depressing idea of an irreparable divorce of action and dream. He will maintain at all costs the common presence of the two terms of human rapport by whose destruction the most precious conquest would become instantaneously worthless".

---

[1] A. Breton *'Les Vases Communicantes'*, Gallinard, 1955. p.170

Fig. 56



Giorgio De Chirico: 'Enigma of an Autumn Hour' 1913

The logic of dreams and the fantastic has the ability to create its own world. It was a belief shared by all surrealists that the truth of dreams, myths and marvels stands above the truth of contemporary logic. The surrealist transformation was not limited to consciousness, it involved the whole of human existence. The surrealist experience was never supposed to be an exorcism of evil, but a liberation of powers which might help to revive archetypal symbols capable of creating a general adherence of humanity, - *'a new myth.*

It is this idea of creating myths, destroying an old syntax, that I would relate directly with the trend of conceiving open space, of creating 21st century parks today. In 'The Enigma of Autumn Evening', Giorgio De Chirico, who was a pre–surrealist painter, expresses his profound sensibility for the magic appearance of phenomena or objects [Fig. 56]. This was inspired a great deal by philosophers like Nietzche and Schopenhauer. In his autobiography, he says:

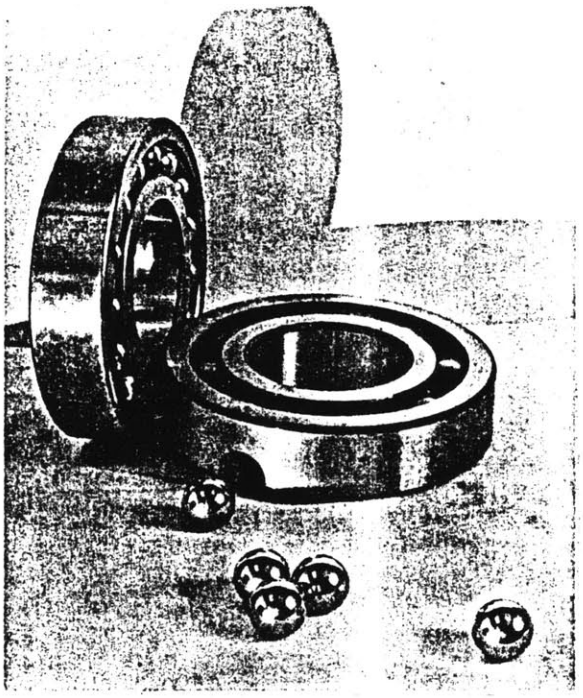
> "Art was liberated by the modern philosophers and poets. Schopenhauer and Nietzche were the first to teach us the profound meaning of the absurdity of life, and show us how this absurdity can be transmitted into art"

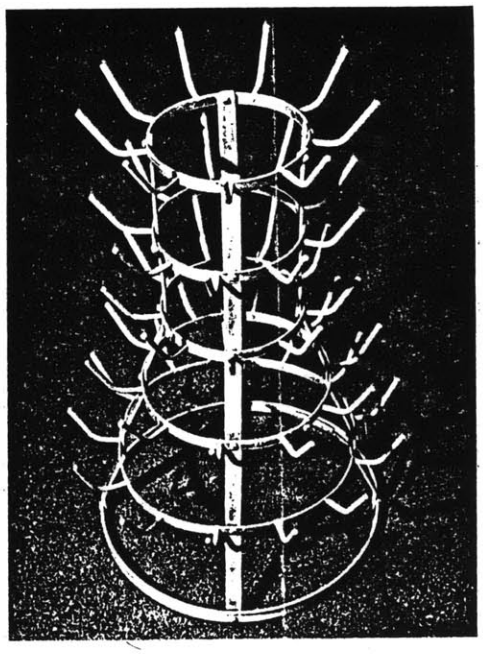
There is no society without a myth. *In what measure we choose to adopt or impose our myths, depends largely on the state of society and our understanding of it.* The surrealists believed that "man originally in posession of certain keys which held him in close communion with nature, had lost them, and since then more and more feverishly persists in trying others that do not work"[1] The surrealist movement was dominated by rebellious confrontations, in which the surrealist consciousness had developed a new dramatic form, fury and provocation. Surrealism, unlike Dada, exploited the results of negation for its own positive goals, developing and cultivating the technique of surprise and bewilderment toward a surrealist 'crisis of the object',

---

[1] [A. Breton. in a conversation with Jean Duche, 1946]

Fig. 57





Marcel Duchamp: 'Fountain'

Marcel Duchamp: 'Bicycle Wheel'

FIG. 58

Marcel Duchamp: 'Nude Descending a Staircase'

which explores *imaginative ways of disrupting given conventional reality until it collapses.* Picabia and Duchamp with their dada objects and ready-mades, became a part of the surrealist tradition, important reminders of the link, which once existed between the spirit of dada and surrealism, between *negation and positive exploration of the new* [*Fig. 57*]. As Breton[1] says:

> "Duchamp offers us a precious line of demarcation between the two spirits that will tend to oppose one another more and more, in the very heart of the modern spirit".

The dadaists were among the first, to focus their full attention to the rapidly accelerating technology of their environment. They stripped away traditional values to accept the vitality of contemporary life. This was, but one issue among the many artists who lacked an available tradition in acknowledging the machine. The perceived cultural changes wrought by technology necessitated a re-evaluation of basic questions about art and culture.

Culture, therefore being a construct of symbols, conveying the values, attitudes and ideas of a given group and informing its behaviour. *Artistic and architectural activity can be defined as a synthesis of abstract meaning and concrete manifestation.* Duchamp's 'Nude Descending A Staircase', was described as an 'explosion in a shingle factory', the same may said of Dada [Fig. 58]. It was neither a school nor a movement but rather an essentially chaotic phenomenon that cut across art forms and national boundaries. Both the Dadaists and the Surrealists vigorously attacked prevailing cultural definitions of art, for art and anti-art, are symbiotic aspects of the creative process, as innovation works against tradition and convention. Dadaism began in Switzerland, during the first world war and spread rapidly

---

[1] A.Breton, *'What is Surrealism'*, Pluto Press, London 1978, p.11

throughout Europe, and to America only through the presence of Francis Picabia, and Marcel Duchamp. American artists were eager to learn French Modernism. The magnetic fields of technology and the avant-garde generated new polarities to replace those that were arbitrary and without much validity.

Neither the group's satire, nor experimentation was entirely successful, until Picabia brought the two together in his 'machine drawings'. Dada at the same time highlighted the dangers of applying false analogies of scientific experiment to artistic endeavor. *The nervous thrusts of their visual lines add a dimension of motion, suggesting thought processes in action. In this way an illusion of mental simultaneity is created, the random chaos of thought occasionally interpenetrated by its own internal logic and rhythm.*

Today, the language of architecture is in a state of continuous change, which makes impossible the perpetuation and the universality of an idea. In 1915, praising the 'scientific' spirit of Seurat, Marcel Duchamp predicted that the twentieth century is to be still more abstract, more cold, more scientific. Duchamps' ready-mades constituted a major innovative mode of expressing his ideas about art. His first ready-made was the 'Bicycle Wheel' of 1913, mounted upside down on a stool [Fig. 57]. The 'object', thus presented, gave rise to a number of critical issues:

a. The nature of subject matter

b. The involvement of the viewer

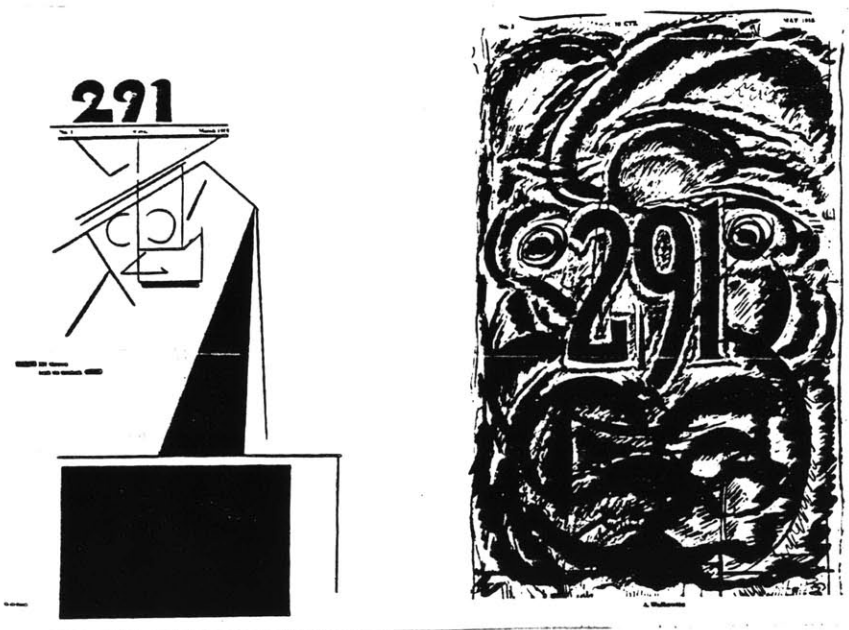
c. The nature of the aesthetic process

d. The ontology of a work of art

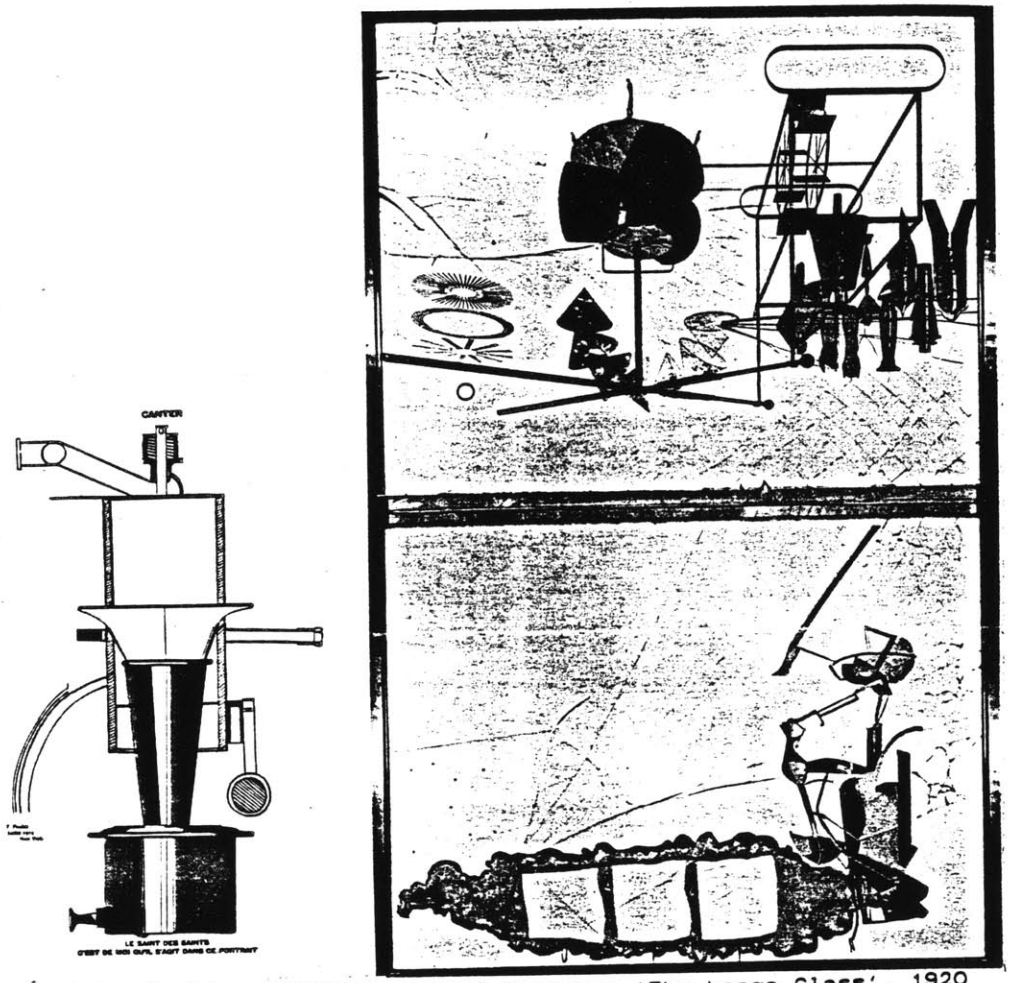
e. The object's relationship to reality

Obliterating pre-conceived notions about art, the ready-made invalidated the arbitrary distinctions between art and nature. Duchamp's 'Large Glass' is a major

Fig. 59



Francis Picabia: 'Self Portrait', 1915



Francis Picabia: Machine Drawings Marcel Duchamp: 'The Large Glass', 1920

work of the twentieth century, in its feeling for modern life [Fig. 59]. *For Duchamp, Dada "was a way to get out of à state of mind - to avoid being influenced by one's immediate environment or by the past: to get away from cliches - to get free."* Following this feeling, it is important to create one's own myths and traditions instead of blindly following pre-existing ones.

Contradictory Forces Ruling 20th Century Architectural Composition

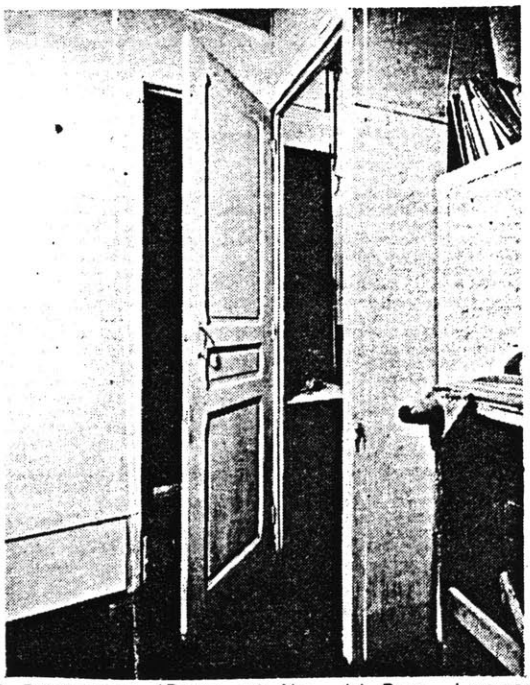
Architecture, during the time of the surrealists and the Dadaists was not ready to explore the spaces of the unconscious: they were too busy discovering formal or technological breakthroughs. Today most major technological inventions have been integrated in the routine of everyday life. The questions that remained unanswered in the 20's and 30's can now be raised again. *These questions have little to do with style, but rather, they prove the very nature of the architectural experience.*

Duchamp, Artaud, Breton and a series of others raised these questions. They all attacked 'surrealism' for not going far enough. They each refused the cult of the object. They dealt with reality and concept of space and by extension were talking about architecture.

The list for surrealist suggestions for the transformation of urban forms was endless. It was a combination of various procedures of analysis in any number of variations. *Various distortion techniques, the unexpected juxtaposition of 'distant realities', the incompatible scales or shapes, the defiance of the laws of gravity, the linguistic contradictions, the junction of the natural and artificial. These surrealist procedures seemed well suited to an architectural extension.*

They clashed together urban projects just as they did semantic entities. Real spaces were less important than the symbolic images they contained. *As a result it was*

Fig. 60



Marcel Duchamp: 'Door at No. 11 Rue. Larrey', 1927

Anonymous: 'Locomotive in Repose', Minotaure Magazine

never really tested in terms of real space. Duchamp's 'The Glass' was uncovering the empathy between text and art, between concept and object and was of far-ranging significance for architecture. Duchamp was hinting at a type of spatial relationship, that was made up of references and wit.

To escape being subjected to associations with existing notions of taste, he chose 'mechanical drawing' for it was outside pictorial convention. Duchamp's "Door at No. 11 Rue Larrey", designed in 1927, is as close to a ready-made as any architectural element can be: it is *a key feature in any spatial definition* [Fig. 60]. The door plays a remarkable role: while it can be opened and closed simultaneously, it seems that the rooms would turn around the door. It is an excellent example of juxtaposition. Users become an integral part of the functioning of the door. *The "Large Glass" is a plane, the door an articulation.*

Live actions were always a means for the avant-garde to explore the furtherest boundaries of their fields. It allowed them to probe the relationship between people, concepts and the unconscious, in actual time and space. Futurism, Dada and the Surrealists experimented first with provocative spatial attitudes in the form of live events long before such attitudes were formalised into art movements.

While Duchamp had attacked purely retinal works and insisted on the secret presence of concepts, Artaud had attacked the purely verbal and insisted on 'experience' and 'sensation'. In both cases, they dealt with two fundamental aspects of architecture. Artaud's insistence on theatre is as important as his concern for spatial expression. He was seeking to rediscover the idea of a unique language between 'gesture and thought', constantly insisting on a spatial language. Just as Duchamp sought to establish a tension between ideas, objects and persons, Artaud would give comparative importance to them through their relationship to reality and danger.

The architectural implications of Artaud's work were obvious. If architecture was to have anything to do with unconscious mental images, it was not in the form of a 'representation' of these images. By implication, Artaud's question was *whether architecture, when seen as the necessarily painful meeting of space and life, transforms the substance of its space, of reality.* And so as Breton says:

> "Wherefrom life and death, reality and imaginary, ceased to be perceived in a contradictory way."

We find the same hapenning today, with regard to the merging of fantasy and reality. Event and space become inter-dependant. About reciprocity and movement, Breton, after seeing an anonymous picture published in 'Minotaure', [Fig. 60] of a powerful abandoned locomotive, says:

> "Apart from the fact that the desire to see, that has long been accompanied for use by a particular kind of exaltation, it seems to me that the surely magical aspect of this, monument to victory and disaster would be better suited than anything else to determine one's ideas - these can be healthy - convulsive beauty, only at the price of the affirmation of the reciprocal relationship that joins an object in movement, to the same object in repose."

In 1942 Breton[1] summarised the crucial points of his philosophy in a decisive statement:

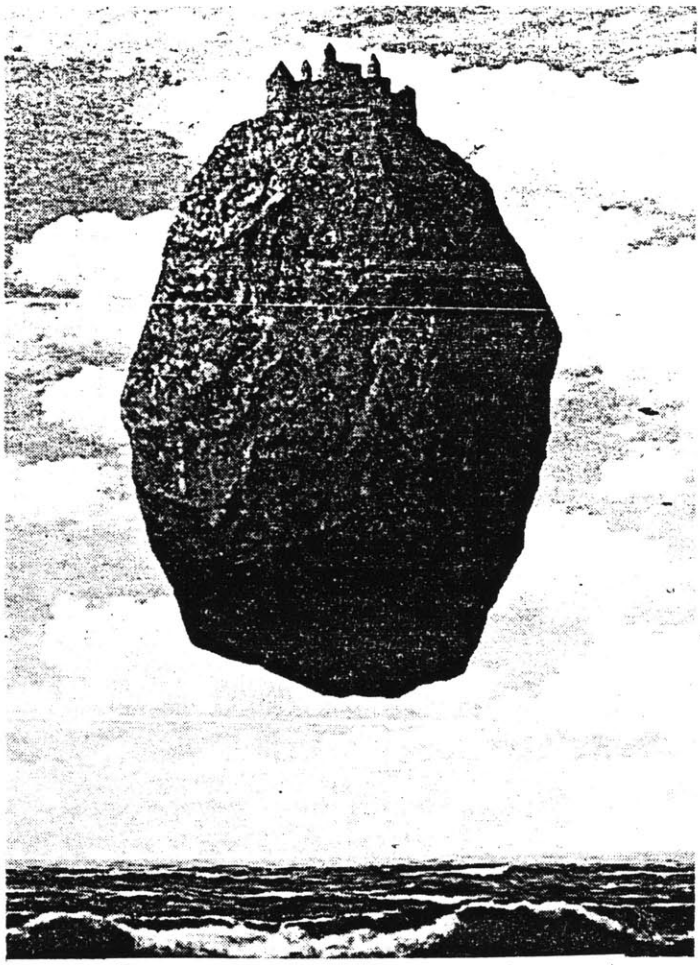
> "Among those contradictions which are fatal to us and the most important to resolve, and it is the one in which I have interested myself most extensively - is the one that sets at odds nature and man within man's conception of nature's necessity and of his own, these two necessities present themselves as being in grave discord. Although I cannot pretend to have resloved it, I have, at least, shown that it does not totally resist the attentive observation of coincidences and other phenomena said to be 'chance'. Chance remains the great veil to be lifted".

The 'grave discord' that he refers to lies within the bounds of the crisis of modern culture. *This crisis of modern culture is a deep conflict which appears on the*

---

[1] A. Breton, *'What is Surrealism'*, Pluto Press, London 1978, p.245

Fig. 61



Rene Magritte: 'Chateau de Pyrenee'

surface as an endless number of symptoms, artificiality, nature, art and technology, altogether as a debate of 'two cultures'. It can be diagnosed as a split between modern rationality and experience, between conceptual and perceptual worlds, and as a forgetfulness of being.

Rene Magritte in his 'Chateau de Pyrenee', brings attention to the materialization of ambiguities. This represents a displacement similar to the one Focault talks about [Fig. 61]. The displacement of the object is a challenge of the visual coherence of common place reality, which often leads to material transformations of the whole vision.

Magritte disliked being called an artist and preferred to be called a 'thinker' who communicated by means of paint. The relationship between words and images/things was precisely the theme so many of his canvases explored with startingly disorienting effect.

Magritte and Foucault recognized in each other a common fascination for 'heterotopias'. The distinction between utopia and heterotopia[1] is made clear by Foucault:

> "Utopias afford consolation: although they have no real locality there is nevertheless a fantastic, untroubled region in which they are able to unfold; they open up cities with vast avenues, superbly planted gardens, countries where life is easy, even though the road to them is chimerical. Heterotopias are disturbing, probably because they secretly undermine language, because they make it impossible to name this and that, because they shatter or tangle common names, because they destroy syntax in advance, and not only the syntax with which we construct sentences but also that less apparent syntax which causes words and things to 'hang together'. That is why utopias permit fables and discourse; they run with the very grain of language and are part of the fundamental dimension of the fabula; heterotopias...dessicate speech, stop words in their tracks, contest the very possibility of language at its source; they dissolve our myths and sterilize the lyricism of our sentences".

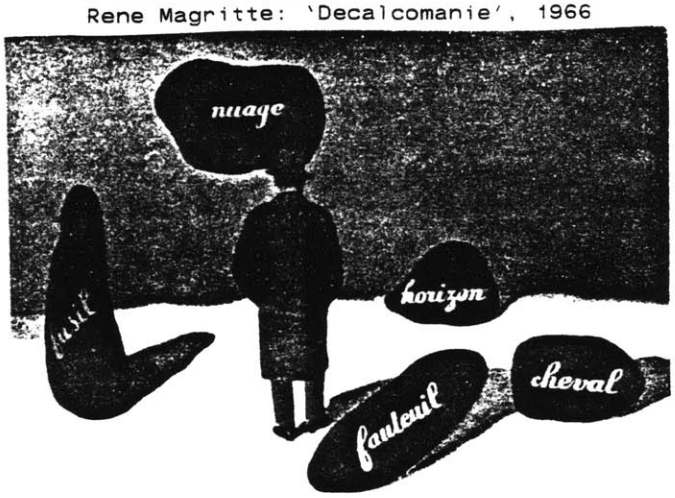
---

[1] Michel Foucault. *This is not a Pipe,* Univ. of California Press Ltd., 1983, p.p. 6–12.

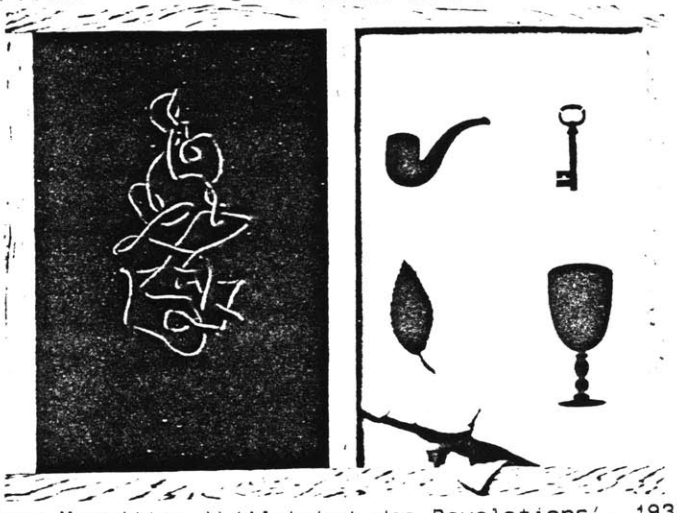
Fig. 62-A

Rene Magritte:
'Ceci, c'est n'est pas une pipe'

Rene Magritte: 'Decalcomanie', 1966

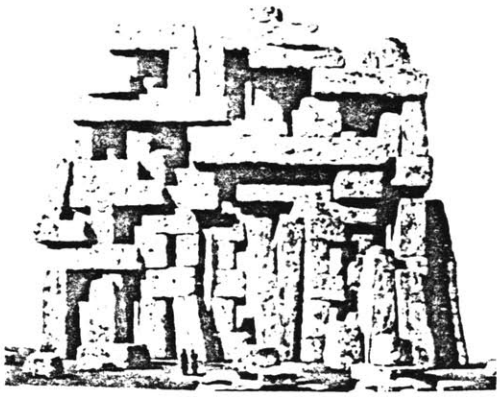


Rene Magritte: 'Personnage Marchant vers L'Horizon', 1928-29

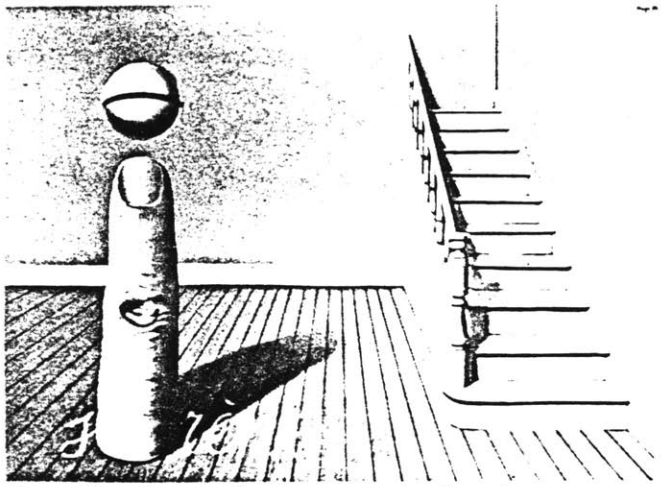


Rene Magritte: 'L'Alphabet des Revelations', 1935

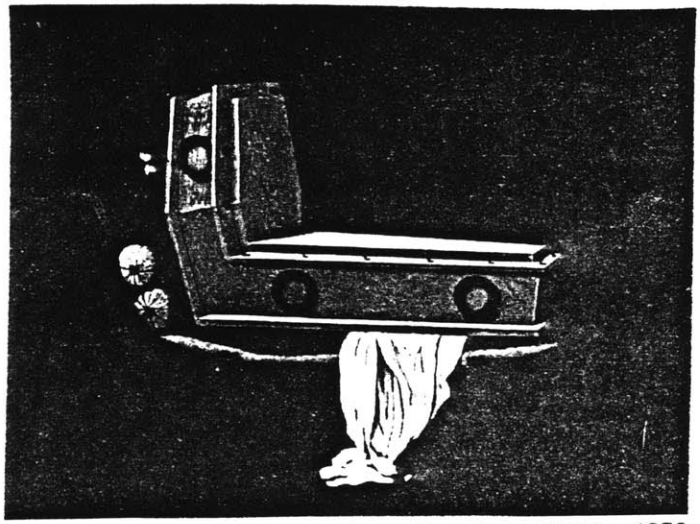
Fig. 62-B



Rene Magritte: 'L'Art de la Conversation', 1950

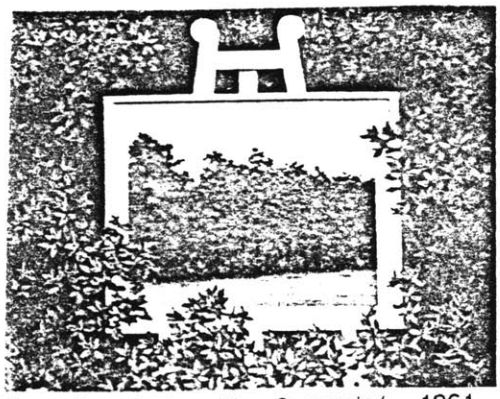


Rene Magritte: 'L'Usage de la Parole', 1932



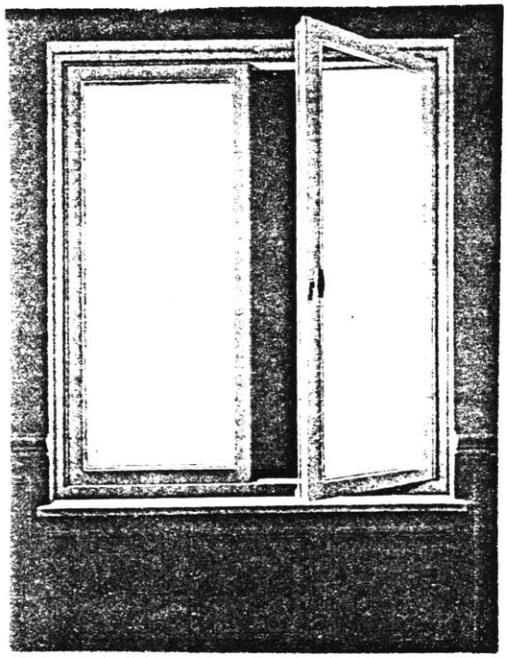
Rene Magritte: 'Perspective: Mme Recamier', 1958

Fig. 63

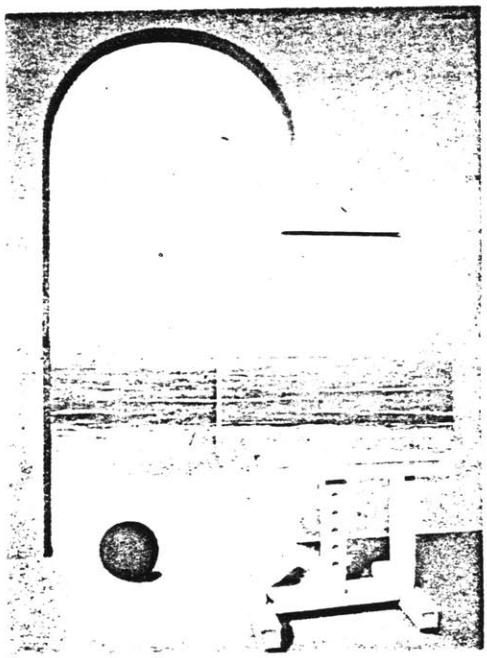


Rene Magritte: 'La Cascade', 1961

Rene Magritte: 'La Bataille de L'Argonne', 1959



Rene Magritte:
'La Lunette D'Approche ', 1963

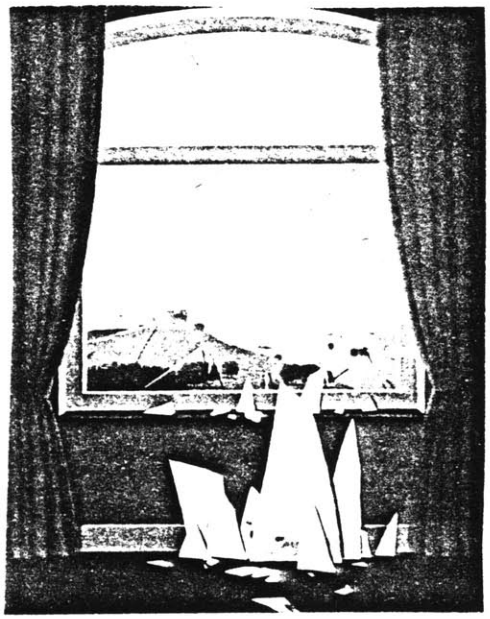


Rene Magritte:
'La Condition Humaine', 1933

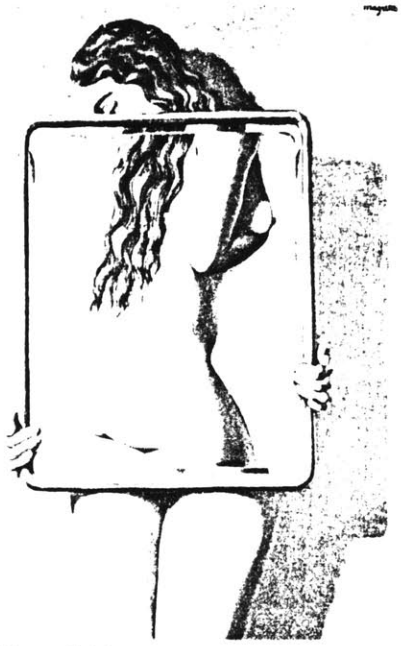
63-A

Rene Magritte:
'Folies des Grandeurs', 1961

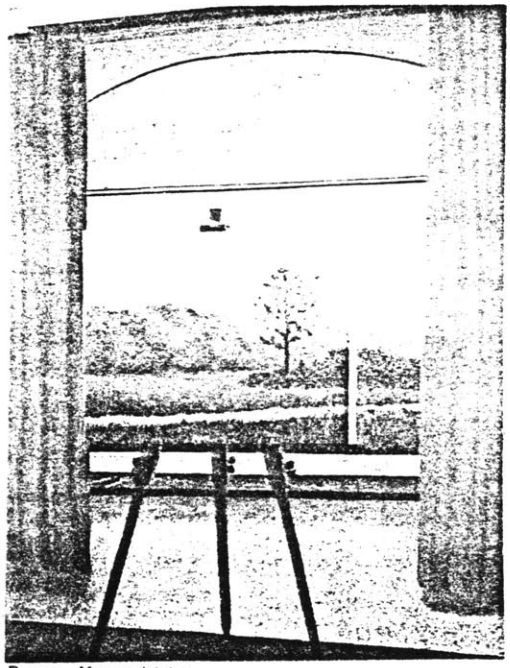
Rene Magritte: 'La Dame', 1943



Rene Magritte:
'Le Soir qui tombe', 1934



Rene Magritte:
'Les Liaisons Dangereuses', 1936



Rene Magritte:
'La Condition Humaine', 1935

As cartographers of Heterotopia, both Foucault and Magritte engage in a critical language, the former historico–epistemological, the latter visual. Each in his way concurs with the linguist Ferdinand de Saussure in asserting the arbitrariness of the sign that is, the essentially circumstantial, conventional, historical nature of the bond between the signifier [idea], and the signified [object]. In Saussurean linguistics, words do not refer to things themselves, but may have varied meanings.

The mystical, Platonic identification of words with the essences of things is what many of Magritte's canvases vigorously assault [Figs. 62–63]. Just as in Saussurean linguistics words do not 'refer' to things, in Magritte's Surrealism, the painter's images do not really 'resemble' anything whose sovereign presence would lend it the aspect of a model or origin.

Margitte's strategy involves deploying largely familiar images, but images whose recognizability is immediately subverted and rendered by 'impossible', 'irrational' or senseless conjunctions. In "Les Mots et Les Choses", Foucault says:

> "It is in vain that we say what we see; what we see never resides in what we say. And it is in vain that we attempt to show by use of images, metaphors, or similies, what we are saying; the space where they achieve their splendor is not that deployed by our eyes but that defined by the sequential elements of syntax.

As painting becomes an endless series of repetitions, variations set free from a theme, so do elements in the work of Tschumi and Koolhaas. The unexpected appearances become realities with new substance. This becomes clear by what Magritte says:

> "If the spectator finds that my paintings are a kind of defiance of common sense, he realises something obvious. I want nevertheless to add that for me, the world is a defiance of common sense."

In its final aspiration Surrealism tended not only to be a new cosmology, but also a new cosmogony: the myth of creation.

Architecture never became an integral part of a surrealist thought in the same way as painting, sculpture and the creation of surrealist objects. It is significant that the first Surrrealist commentaries on architecture are contemporary with the tendency in the movement to extend the poetic model of early Surrealism into other territories.

The Surrealist object therefore is a voluntary exercise of imagination and memory, that perception and representation are not distinct anymore. It is this aspect of displacement that finds a strong continuation, a re-interpretation of kinds in the work of Tschumi and Koolhaas.

The poetic value of objective chance is accounted for by the lack of resemblance between desired object and the object of discovery (objet-trouve). The ultimate attempt of the Surrealists was to reconcile dream and reality, life and world, and the mystery of the world revealed through objective chance as the spontaneity of nature in crystal form. As a novice, Magritte experimented with cubism, futurism and other styles, but it was Giorgio De Chirico who seems to have electrified him.

De Chirico's work can be termed as an 'architecture without reason'. Surrealism wanted to move via the unconscious to reveal an architecture of the unknown, an architecture denied recognition by the rules of logic and reason. His porticoes, ghosts, dummies and introverted interiors provide keys to his architecture of departure from reason. In place of reason's stupefying respect for mechanical order, the surrealists proposed an environment of impending provocation, in this way his surrealim expressed an architecture detached from all cultural suppositions. Chirico, portrayed the building as a rendezvous of 'precise mechanisms that have no use'. He was trying to release himself of all labels representing convention.

We see that in Tschumi's work, *the injection of a programatic use of 'content' is derived from the 'order' of experience, that is juxtaposed on the order of the grid.* This notion is a departure from the traditional language of architecture and in many ways becomes symbolic to an architecture of Surrealism, but with a new angle or base, that being the injection of information systems and programs as determining an order out of random chaos. This can be restated through what Libeskind says,

> "I have realized that the result of this journey in search of the 'essentials' undermines in the end the very premise of their existence. Architecture is neither on the inside nor the outside. It is not a given, nor a physical fact. It has no history and it does not follow fate. What emerges in differentiated experience is Architecture, as an index of the relationship between what was and what will be."

Architecture during the time of the Surrealists and the Dadaists was not ready to explore the spaces of the unconscious: they were too busy discovering formal or technological breakthroughs. Today most major technological inventions have been integrated in the routine of everyday life. *These questions have little to do with style, but rather, they prove the very nature of the architectural experience.*

Duchamp, Artaud, Breton and a series of others raised these questions. They all attacked Surrealism for not going far enough. They each refused the cult of the object. They dealt with reality and concept of space and by extension were talking about "architecture".

Variations on a Theme

Turning to *contemporary continuations on the same theme,* I would like to link the spirit of the above to a major space proposal for the twenty-first century: Parc La Villette in Paris. In doing so I shall be referring to the award winning proposal by Bernard Tschumi, followed by the proposal by Rem Koolhaas & The Office of Metropolitan Architecture [OMA, Office of Metropolitan Arch.]. The competition for

the Parc La Villette proclaimed a new way of looking at parks as public spaces. Within this context, the programme requirements unfolded a list of prescribed cultural activities that, combined with natural landscaping, would be super-imposed on an old slaughter-house devolopment on the Villette site.

Their philosophies and work reflect much that I am trying to say, about

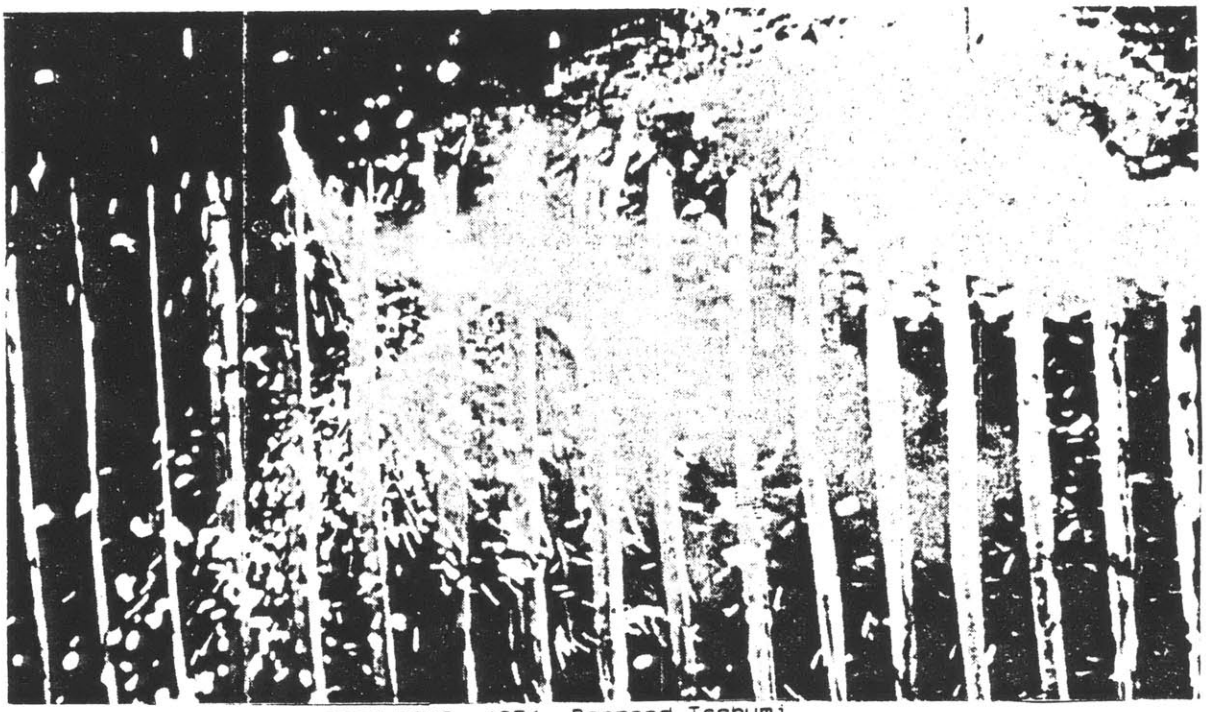
a. the blending of fantasy and reality [surrealism].

b. the notion of communications and information technology, directly translated and manifest in their work. This is a departure from the translation of machine concepts and automatism, on to a present day understanding of their impact, which is slowly and subtly penetrating into our thought processes. Determining how we think and conceive, and in the end radically changing our pre-conceived notions and definitions of what space, object and event may be in the parks of tomorrow.

c. It is in many ways stepping into a realm of inter-active spaces objects, and events that re-construct themselves into new vocabularies. That takes us from the static world to a dynamic one. One enriched by, and more dependant on experience and process rather than just the 'object' as an entity within itself.

The true nature of concepts in language extend beyond the realm of architectural orthodoxy and into the world of attitudes about space, geometry and sensuality. A new architectural sensibility began to develop at the beginning of the twentieth century.

Fig. 64



Manifesto 1: FIREWORKS, 1974. Bernard Tschumi

Tschumi: Architect of the Spirit

Re-construction of Object-Space-Event

'Manifestoes' are curious pieces of literature because they imply strange rituals. As with all contracts, manifestoes assume and specify rules, laws and restrictions. The essence of the manifesto on futurist architecture explicitly states:

"I oppose, and despise.....and I declare!".

By the beginning of the 20th century *manifestoes* were an inevitable part of architectural discourse. Architects needed the manifesto to assert the existence of an overall scheme.

I would like to start this section with reference to other work by Bernard Tschumi, and the development of his notions, which I feel ultimately found a complete synthesis in his representation of the Parc La Villette proposal. Tschumi, developed and presented his ideas by using a 'manifesto'. Much in keeping with the notion of a manifesto as representation of a contract implying rules, laws and restrictions. A document entitled 'Architectural Manifestoes' was published in 1979. It plays on the tension between *'ideas and real spaces', between 'abstract concepts and the sensuality of an implied spatial experience'.* By definition they suggest a polemic; specifically they aim at proposing a controbersial formulation to some of the questions that architecture raises. The fragments he presents consist of a series of 'projects' based on images and notations that can also be understood as 'objects' in their own right. As such they can be seperated from one another and placed into the context in which they belong.

His first manifesto, called 'Fireworks', was conceived in 1974, when architectural historicism was reaching its peak. Fireworks in many ways was the first celebration of absolute pleasure [Fig. 64]. The work in his words:

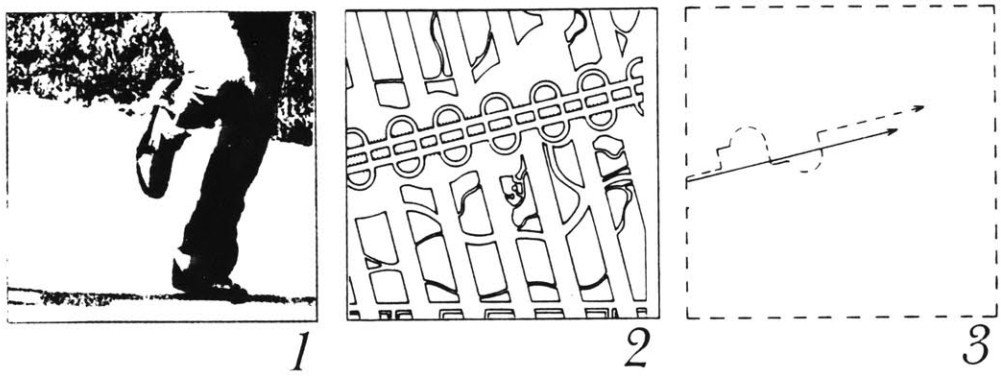
Fig. 65

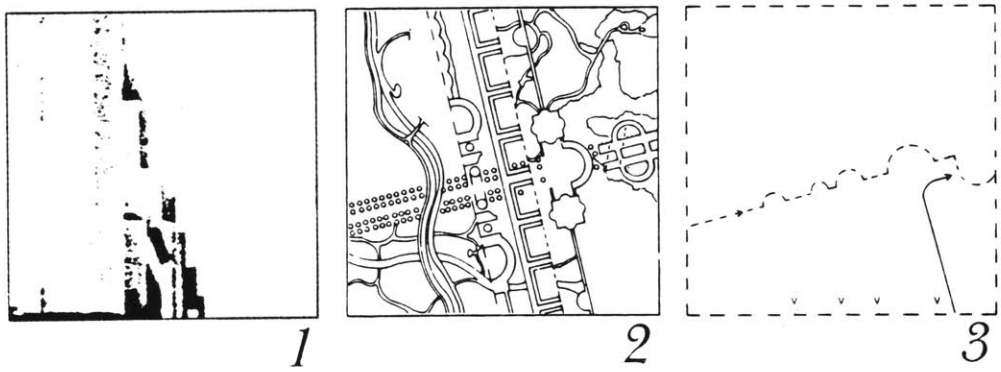
To really appreciate architecture, you may even need to commit a murder.

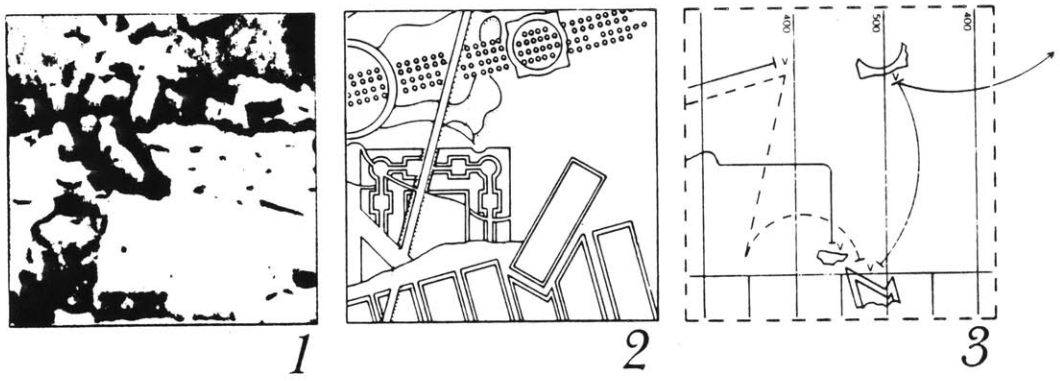
Architecture is defined by the actions it witnesses as much as by the enclosure of its walls. Murder in the Street differs from Murder in the Cathedral in the same way as love in the street differs from the Street of Love. Radically.

Manifesto 3: ADVERTISEMENTS FOR ARCHITECTURE, 1976. Bernard Tschumi

Fig. 66

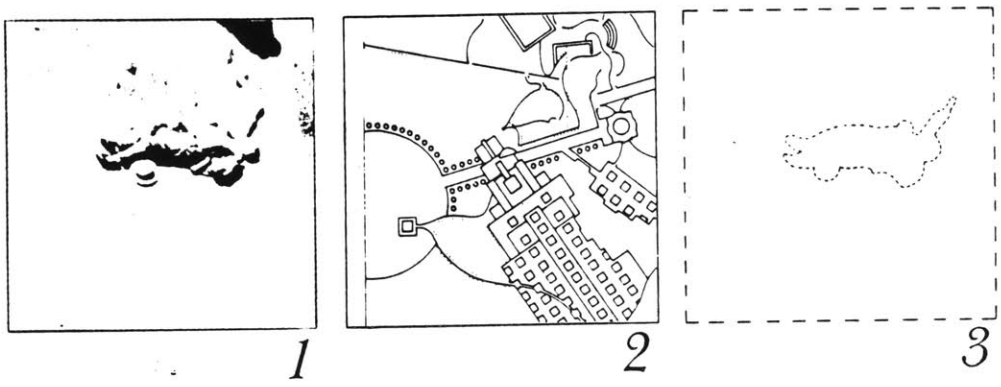


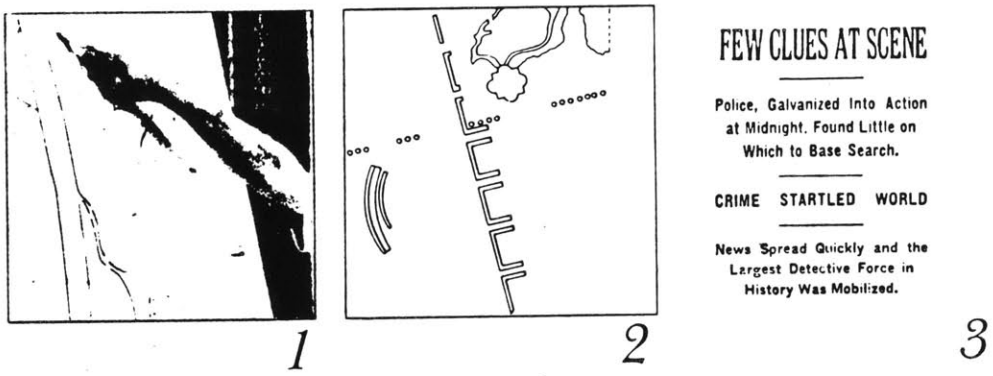


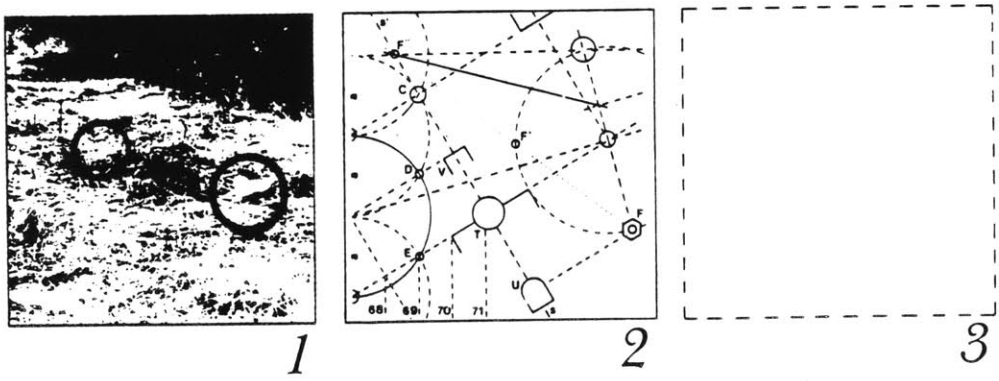


Manhattan Transcript No. 1. "The Park"

Fig. 67

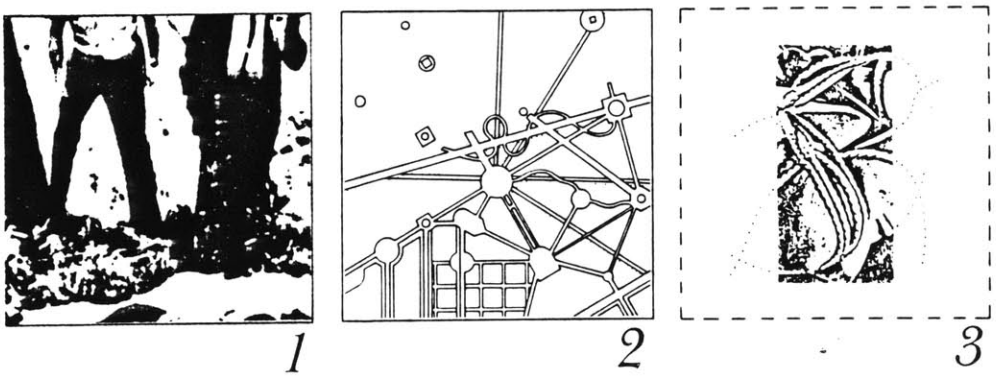




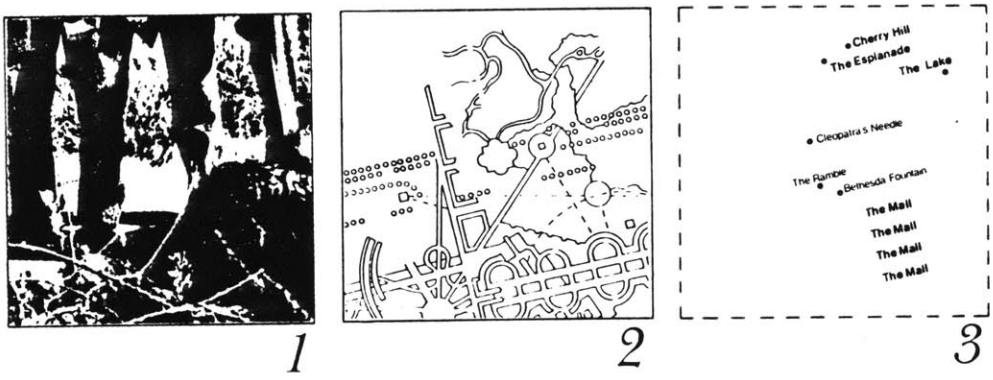


MT 1. The Park

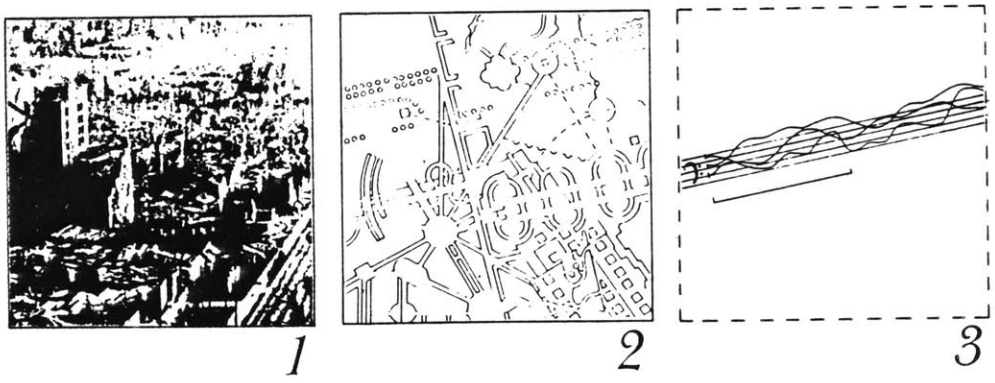
Fi. 68



1 2 3



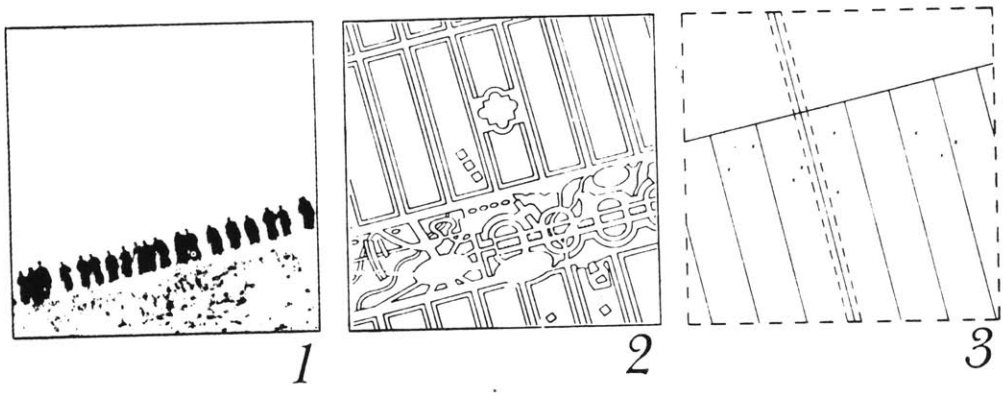
1 2 3

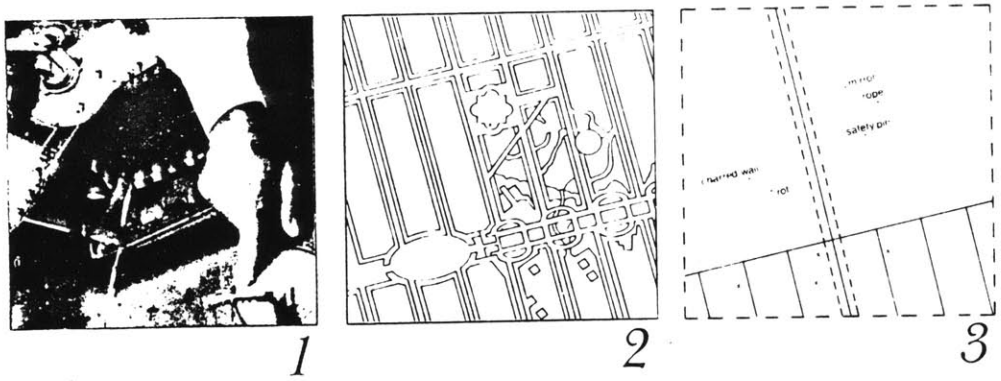


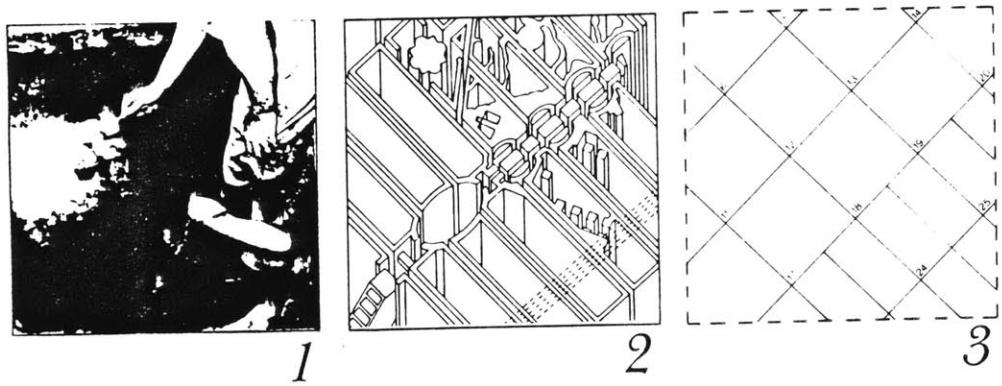
1 2 3

MT 1. The Park

Fig. 69

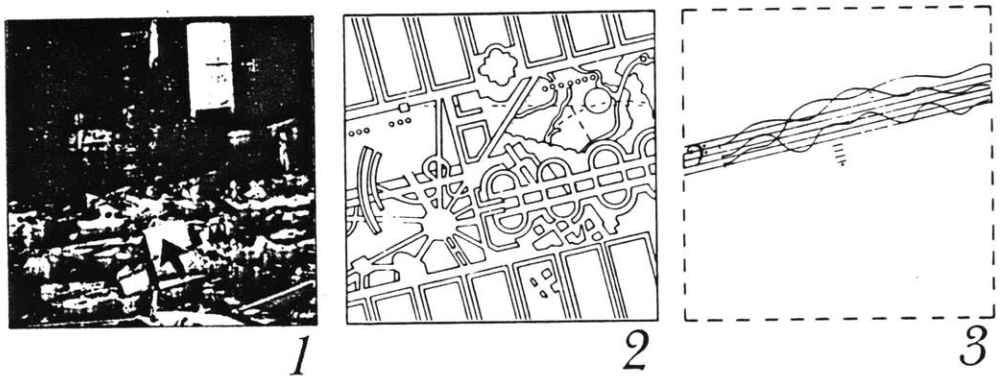


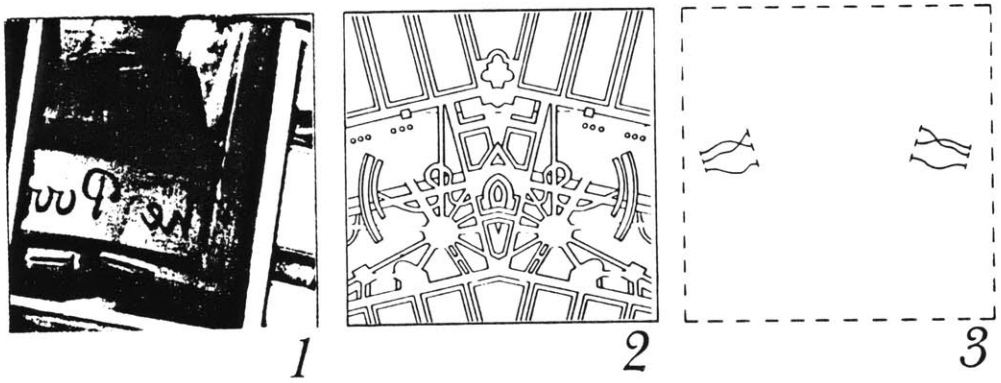


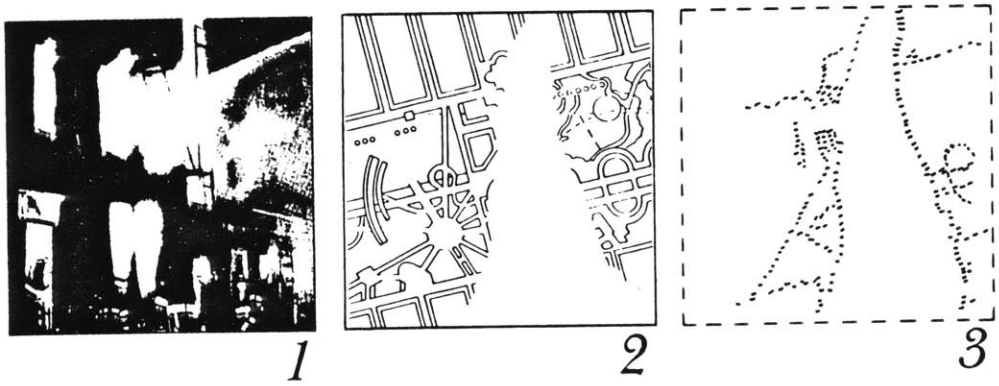


MT 1. The Park

Fig. 70

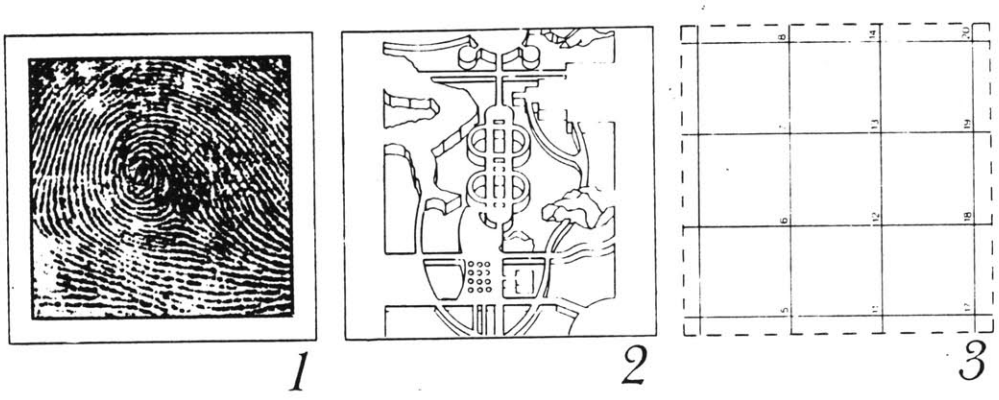


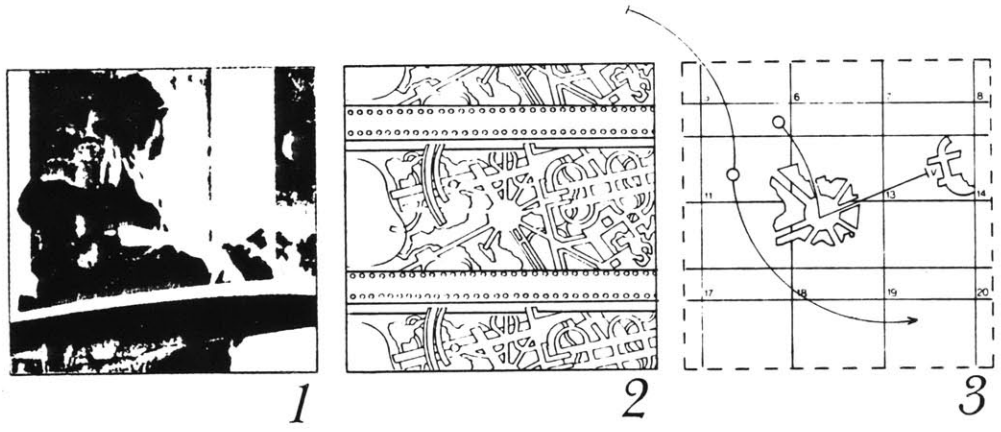


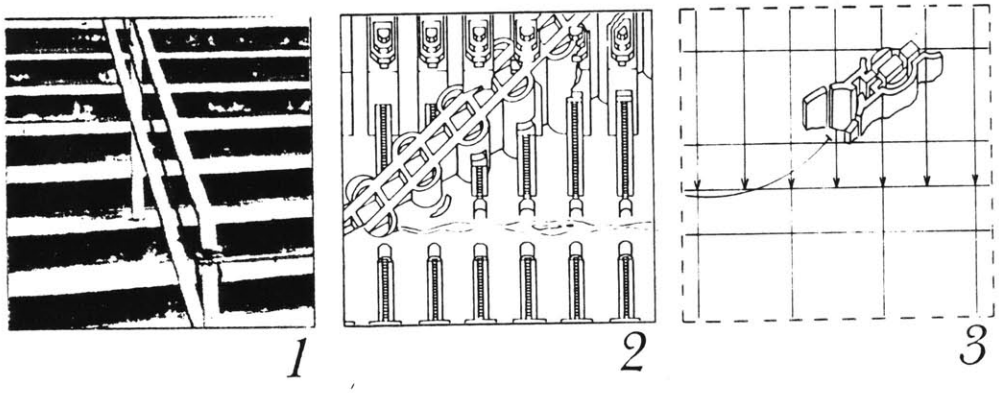


MT 1. The Park

Fig. 71



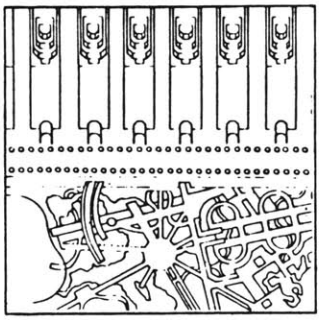




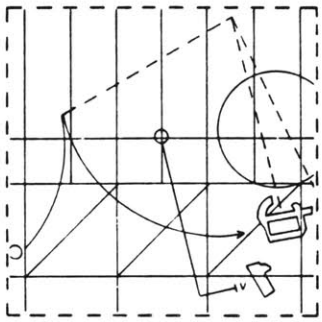
MT 1. The Park

71-A

1

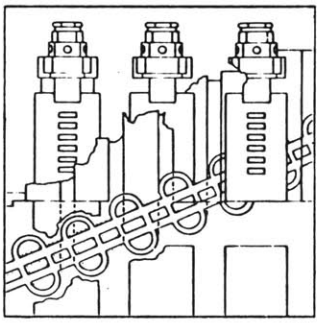


2

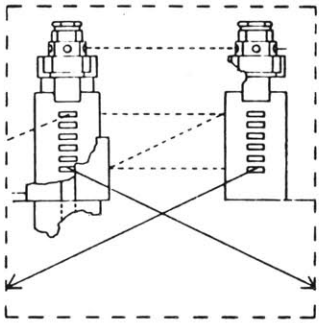


3

1

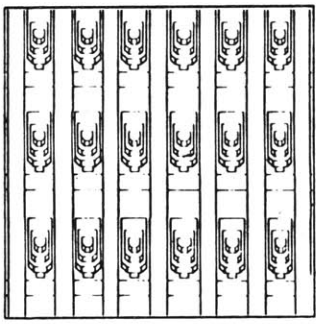


2

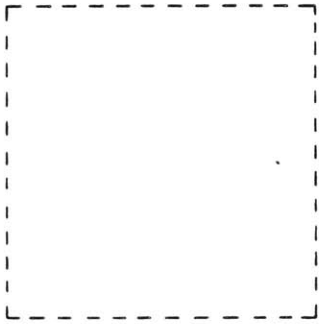


3

1



2



3

> "opposes words and images, signs and spaces, because architecture has always implied these complementary possibilities. It recalls that the history of architecture has been made by the writings and drawings of space as much as by their built translations. These attitudes play with language and theories and attitudes".

Architectural space will be defined by ideas as much as by real walls. Architecture will be the tension between concepts of space and experience of space. The above encapsulates the contemporary trend that architecture and space are in essence becoming surreal. He took his ideas to an extreme, when he published is 'Advertisements for Architecture' [Fig. 65]. His Manifesto 6, is presented in a series of 'transcripts'. The first one being 'The Park' [1977], which was really the seed of many of his ideas found in La Villette [Fig. 66–71].

He describes 'The Park',[1] which is composed of twenty–four sheets illustrating the drawn and photographed version of a murder, as:

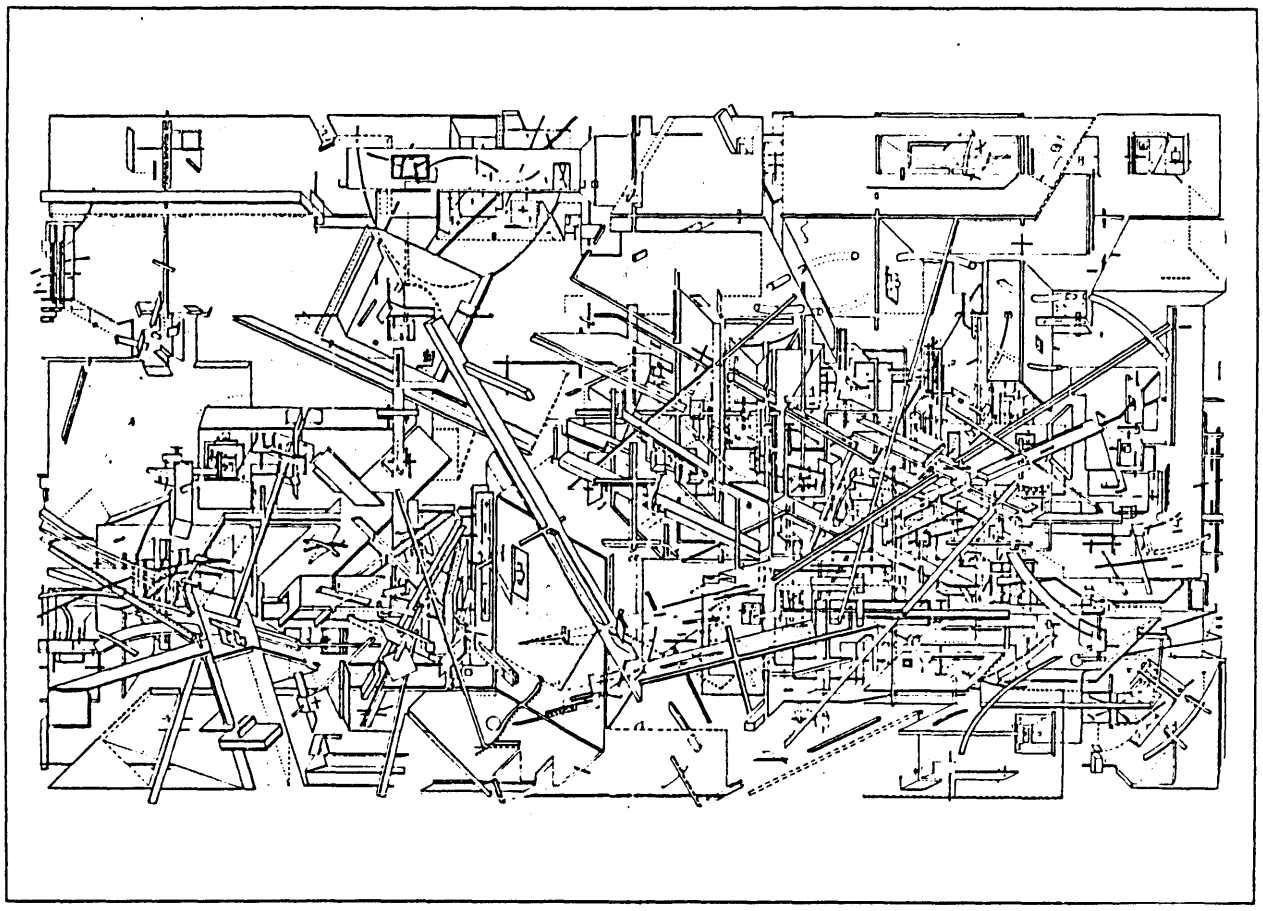
> "Architecture will not simply be the expression of accepted functional or moral standards. Rather, actions, whether forbidden or not will become an integral part of architecture. As a result, conventional plans will no longer suffice and new types of architectural notations will be devised".

And so for him an architectural transcript is a 'device'. It is comparable to a movie script or a libretto. They are 'ways to see' and are descriptions of things normally removed from conventional architectural representation. They always refer to something outside themselves, some action, some passion, some space. Therefore the beginning and end mark neither origin nor terminus, but only *'moments in a larger series of transformations'.* All notions and expressions of architecture are going towards an undefined scale of ambience, where *people, spaces and events begin to merge.*

---

[1] Bernard Tschumi *Manhattan Transcripts,* St. Martin's Press, 1981, p. 10.

Fig. 72



Daniel Libeskind: 'Leakage', Micromegas, 1979

Principles of variation begin to pervade all aspects of thought, where they imply a set of distinctive elements, lines, accents and configurations.

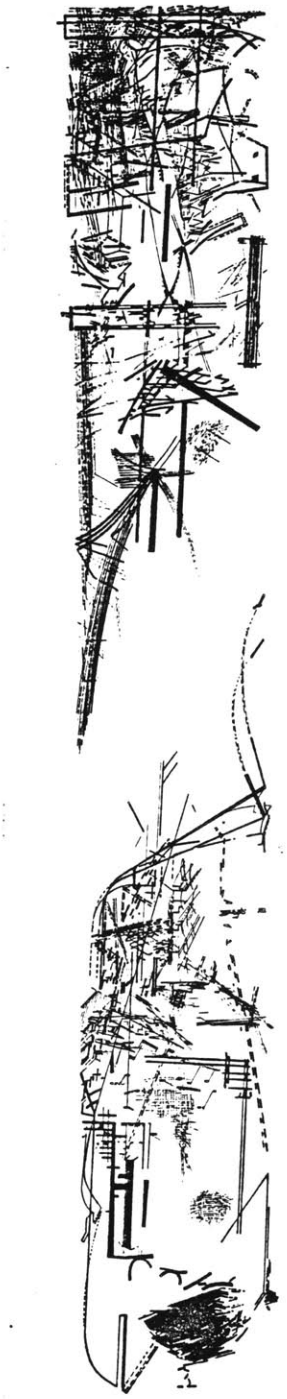
Urban Schizophrenia

They suggest an axial structure, consisting of melody and chord, that revolve around internal symmetries rather than along conventional lines. They can be described to be in a state of *schizophrenic activity* almost analogous to work being done by Libeskind, where fragments, like constellations, become self-supporting. Eventually it is a challenge to the science of pragmatic realism. Tschumi can be defined as an architect of the spirit. His is an architecture where mathematical and speculative elements are inter-woven and combined in a formal chaos. Tschumi's work becomes an almost concrete manifestation of what Libeskind talks about. *Where Libeskind's work is a series of complex hieroglyphics, their abstraction seems to be deciphered in the work of Tschumi.* And so we find an inversion of a celebrated dictum in philosophy: 'meaning is nowhere, its circumference everywhere'.

In architecture we progress to the idea of understanding the essence and spirit of things as they stand for themselves, that the physical and technical domain no longer remains the center of all architecture. Architecture has lost its anthropomorphic concerns; the world is no longer conceived as a cosmos, an orderly structure where everything finds its rightful place. The means of communicating shared belief becomes increasingly difficult. Today reality has far outstripped what we can imagine it to be.

Libeskind's drawings are also representative of the 'spirit of chaos'. They are analogous to the 'key' the surrealists talked about. The 'key' to discover and unlock hidden meanings. In Libeskind's "Micromegas" [1979], we see a description of homogenous continous space, of axonometry and isometry, that result in a *multitude of conflicting spaces* [Fig. 72]. It belongs to a class of works that investigate

Fig. 73



Daniel Libeskind: 'Chamber Works'

Fig. 74

Vertical X

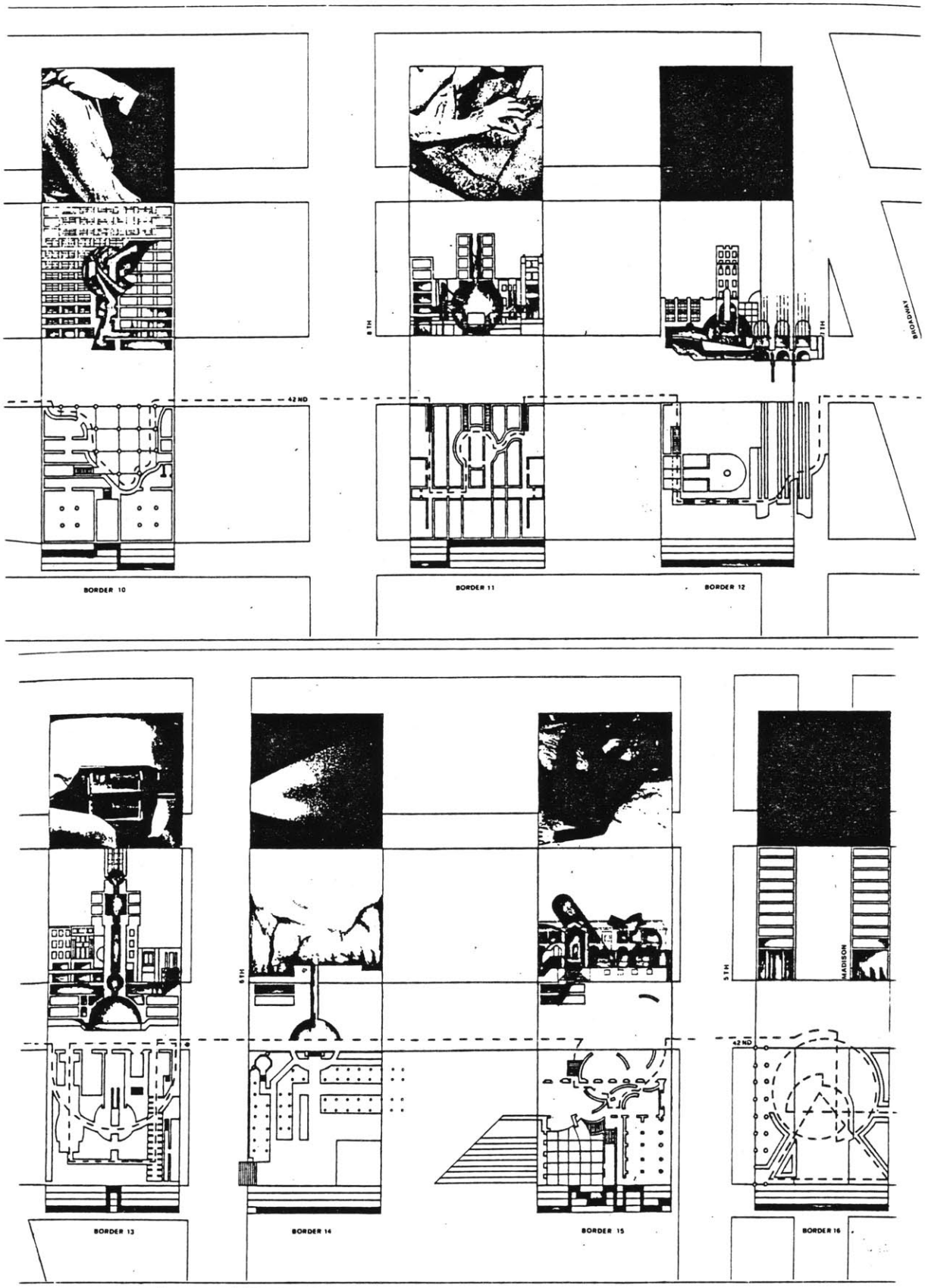
Fig. 75

Vertical IX

Fig. 76

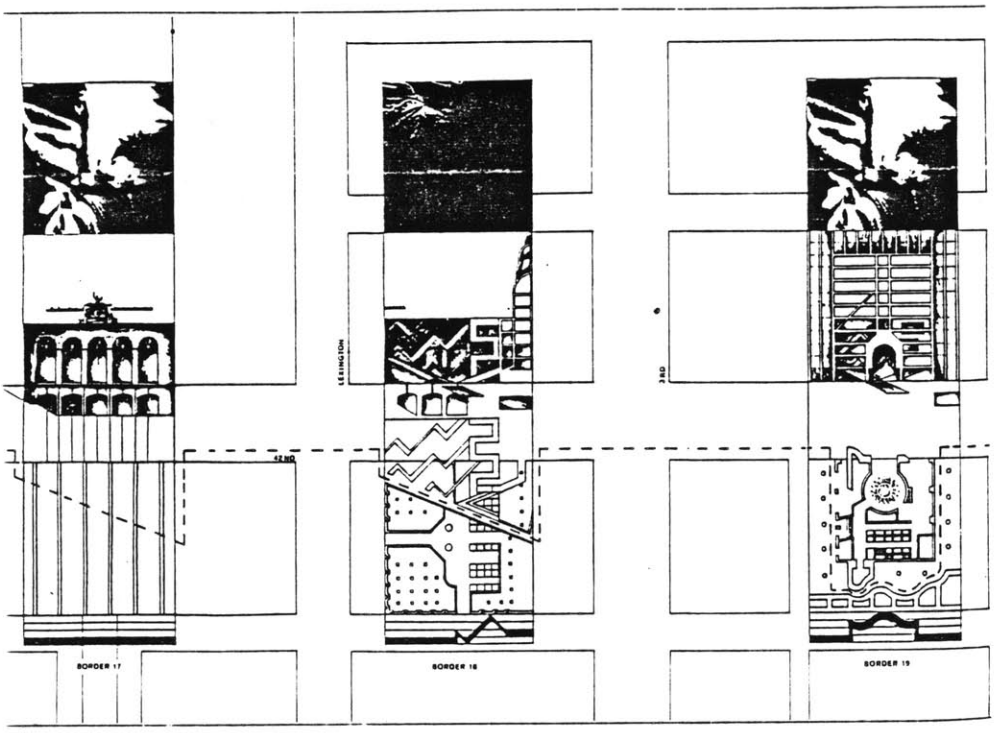
Vertical XI

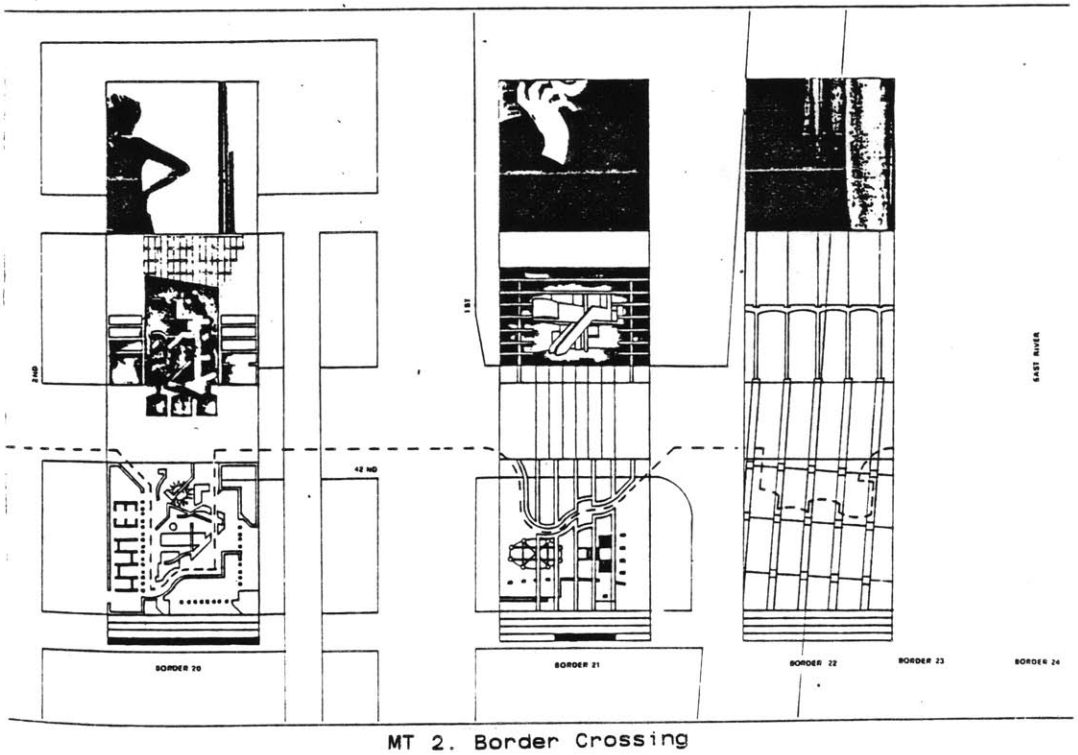
Fig. 77



Bernard Tschumi: 'Manhattan Transcripts: Border Crossing'

Fig. 78





MT 2. Border Crossing

fluctuating representations of space and surface. They can almost directly be associated with the machinations of the constructivist movement, Lissitsky in particular. Micromegas *establishes the convention of pictorial fragmentation.*

'Chamber Works', by Libeskind, is a different interpretation of space, tension, harmony and conflict [Figs. 73-76]. It allows only detached and uncertain spatial interpretations. The work seems to divide territories, enclose, join points, and make paths, quite analogous to what Tschumi does in Parc La Villette. The overriding features in both are conflict and tension.

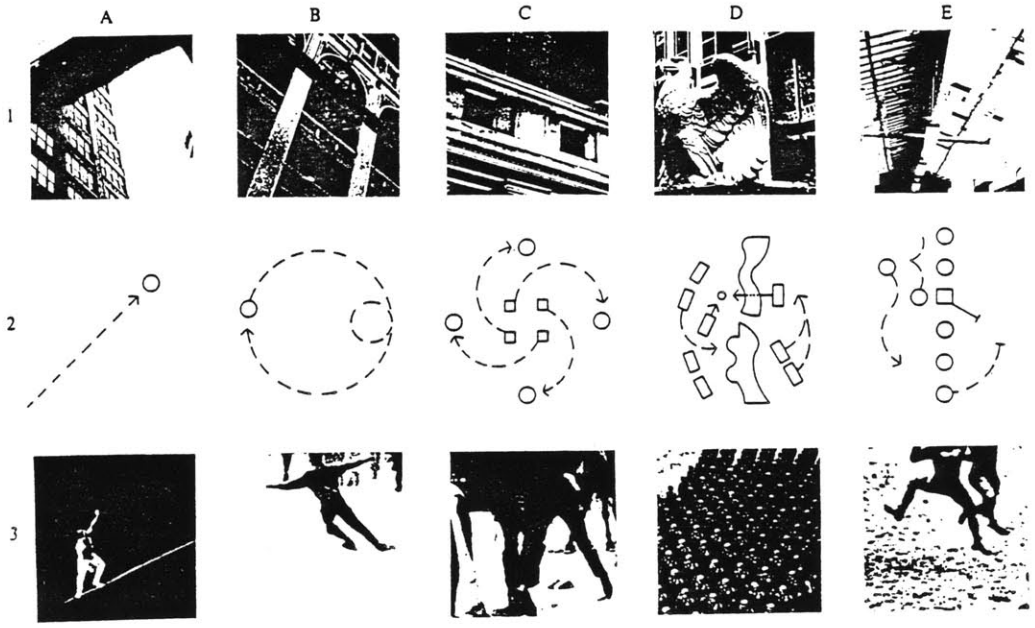
Fragmentation is the underlying message and hallmark of Libeskind's work. Unity and fragmentation and order and conflict seem to be the contradictory forces ruling twentieth century architectural composition.

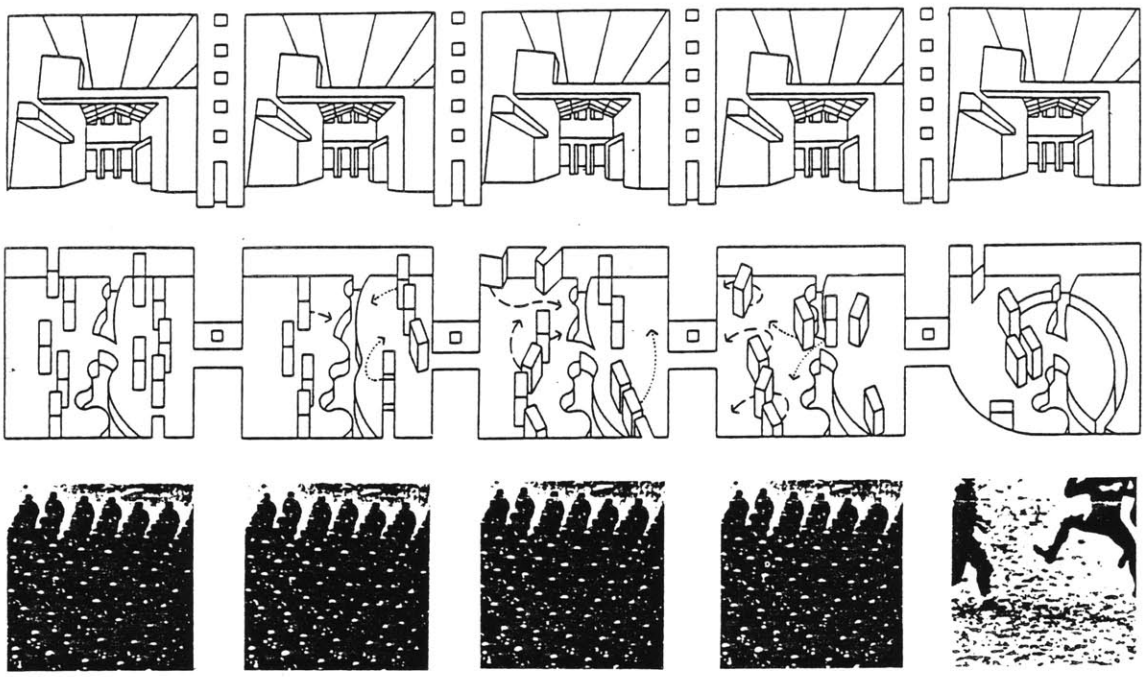
The separation between systems of representation and the aspects of reality they normally stand for has not been applied to architecture before. Drawing, as represented by Piranesi's work, once again becomes an inspiration for architectural creation. It is a quantum leap forwards, a break in tradition. Contemporary architecture, more than in any other period, seems to be one of imitation, reminiscent of archaic models. This is aptly examplified by post-modernism.

I therefore describe Tschumi's work to substantiate a trend that is forward looking and one that breaks conventions. It is important to consider this to see where we are heading, and to find a true representation of contemporary society without resorting to the classical and dead.

And so Tschumi in Transcript 2, Manifesto 7, of his "Manhattan Transcripts" constructs a "Border Crossing" (1978) [Figs. 77-78]. The significance of this title lies in the many 'borders' that it attempts to cross and transgress.

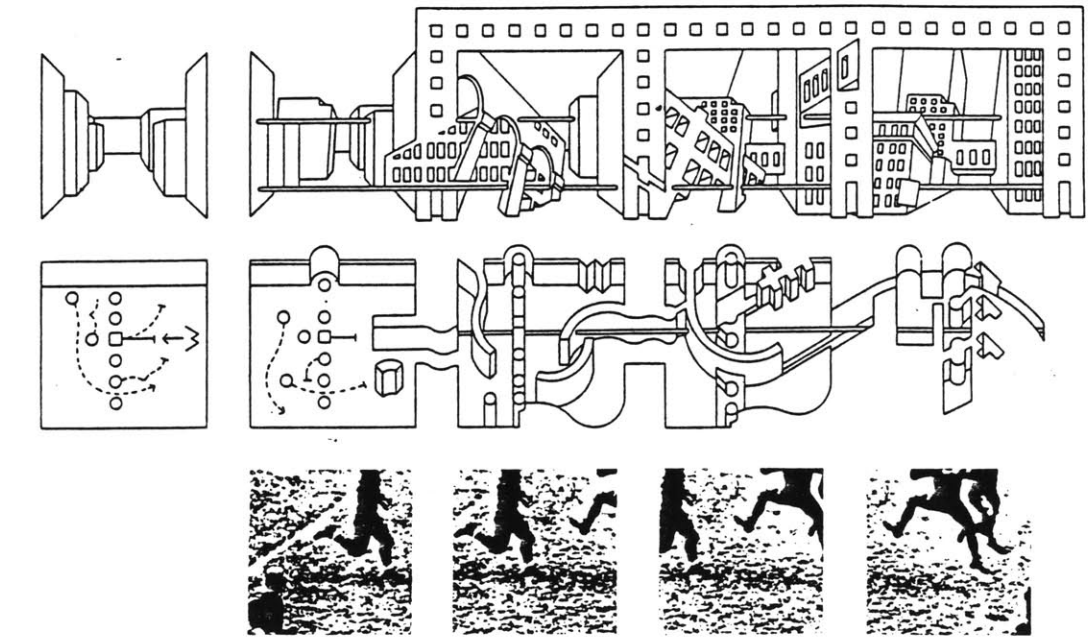
Fig. 79

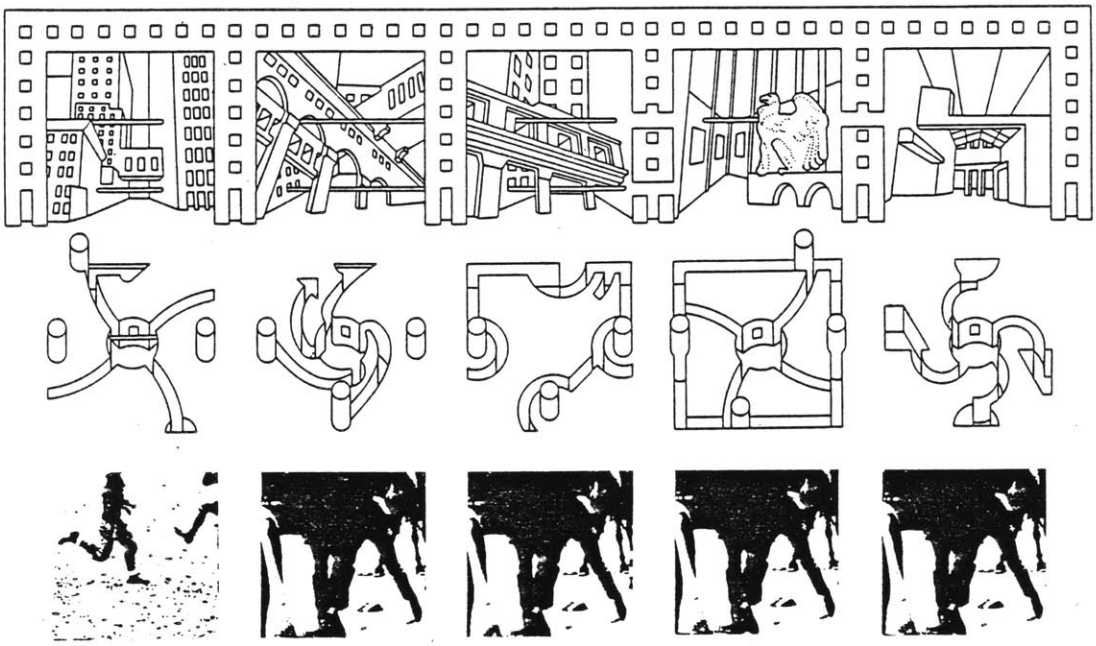




MT 2. Border Crossing

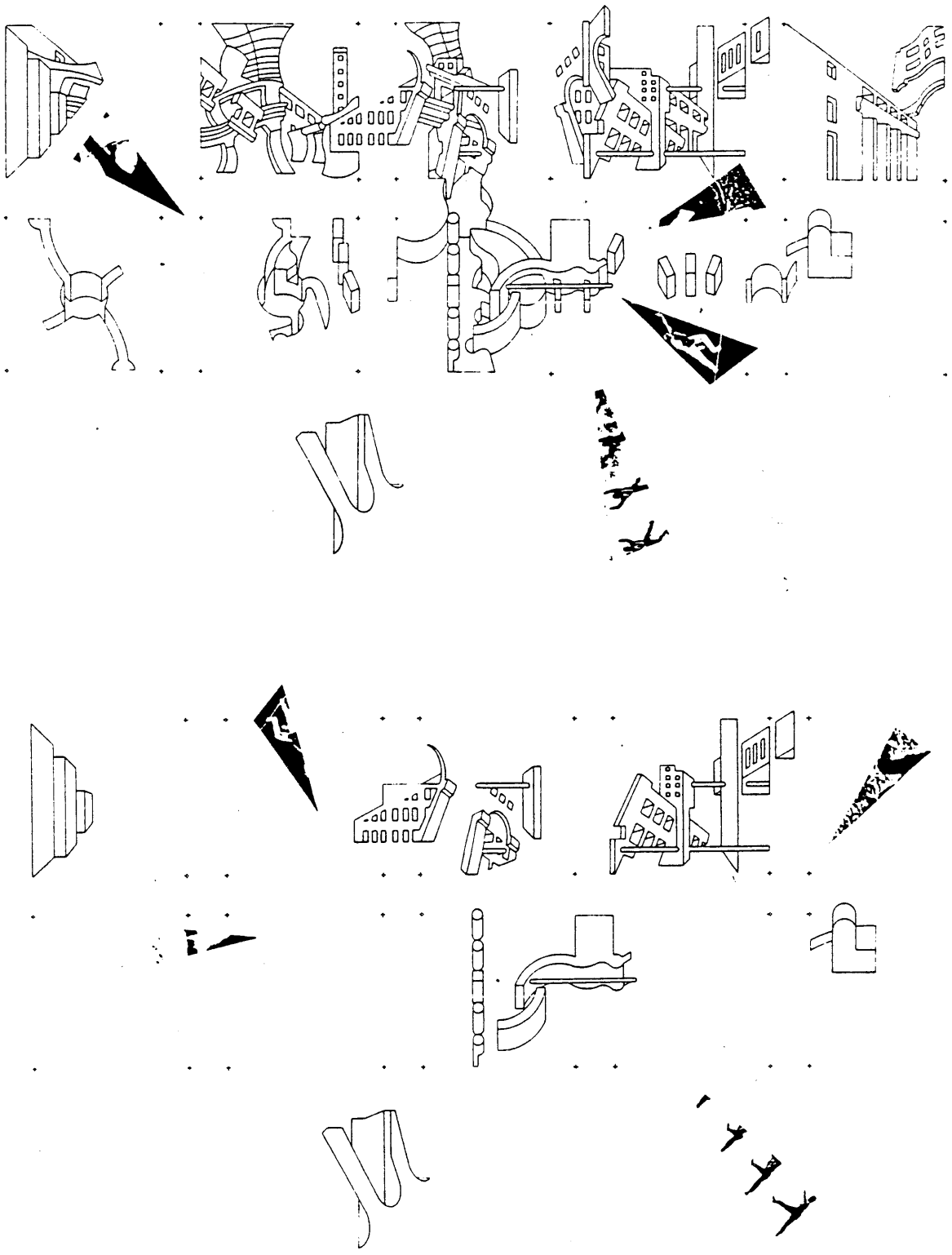
Fig. 80





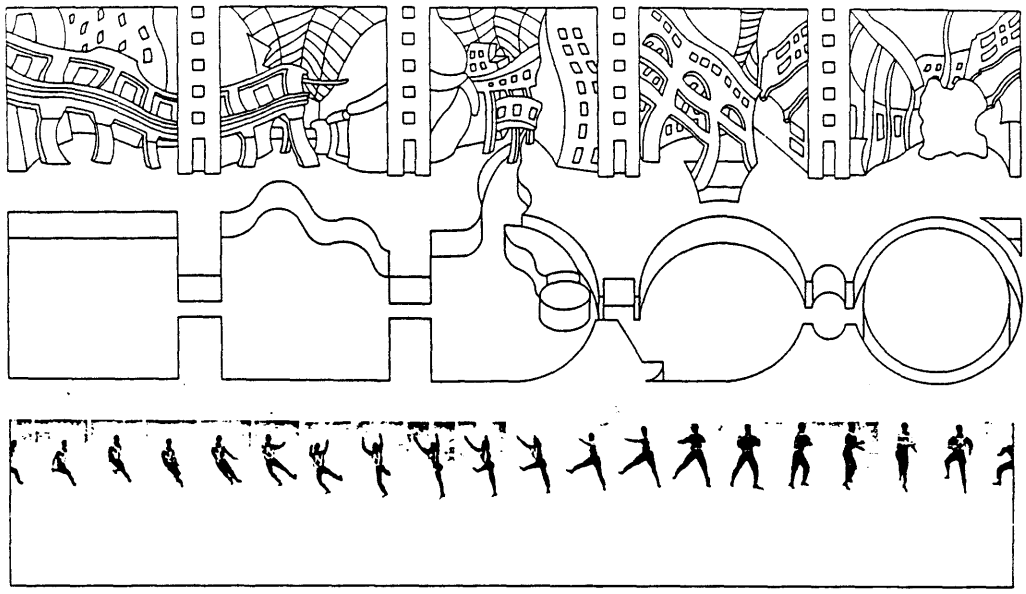
MT 2. Border Crossing

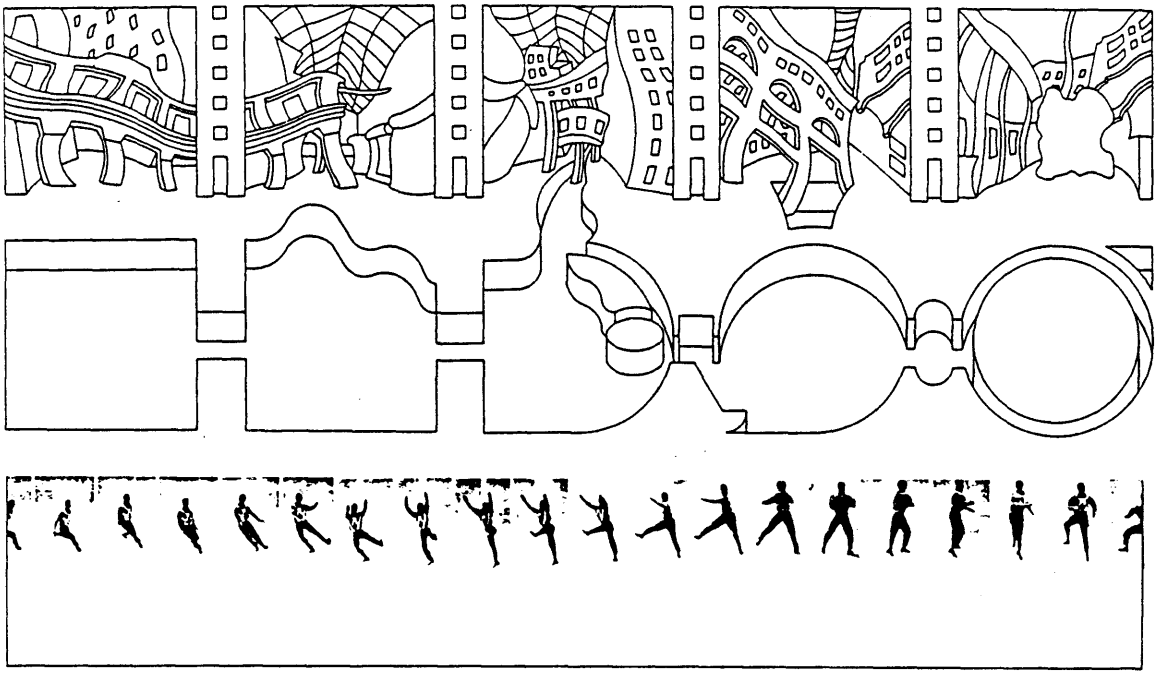
Fig. 81



MT 2. Border Crossing

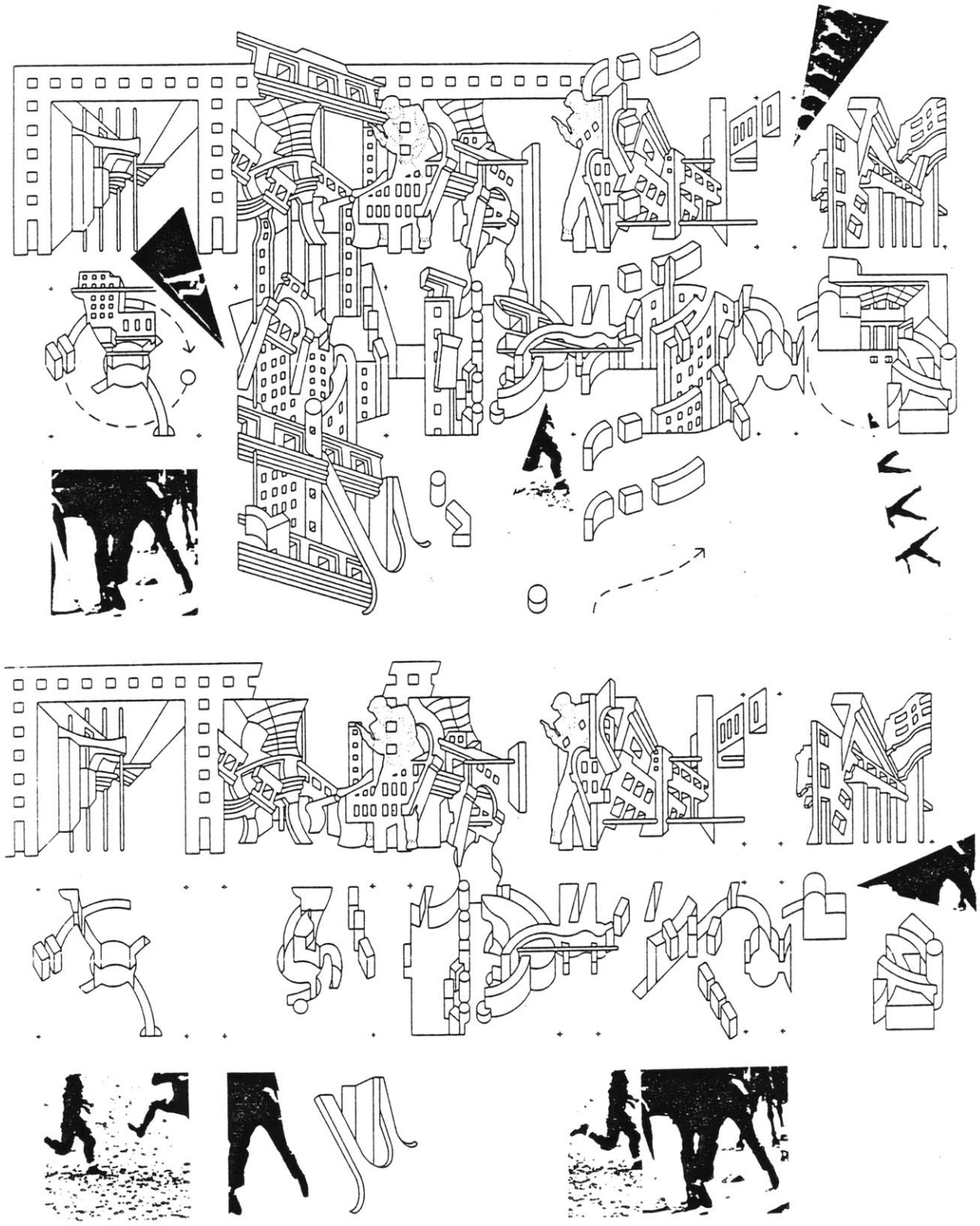
Fig. 82





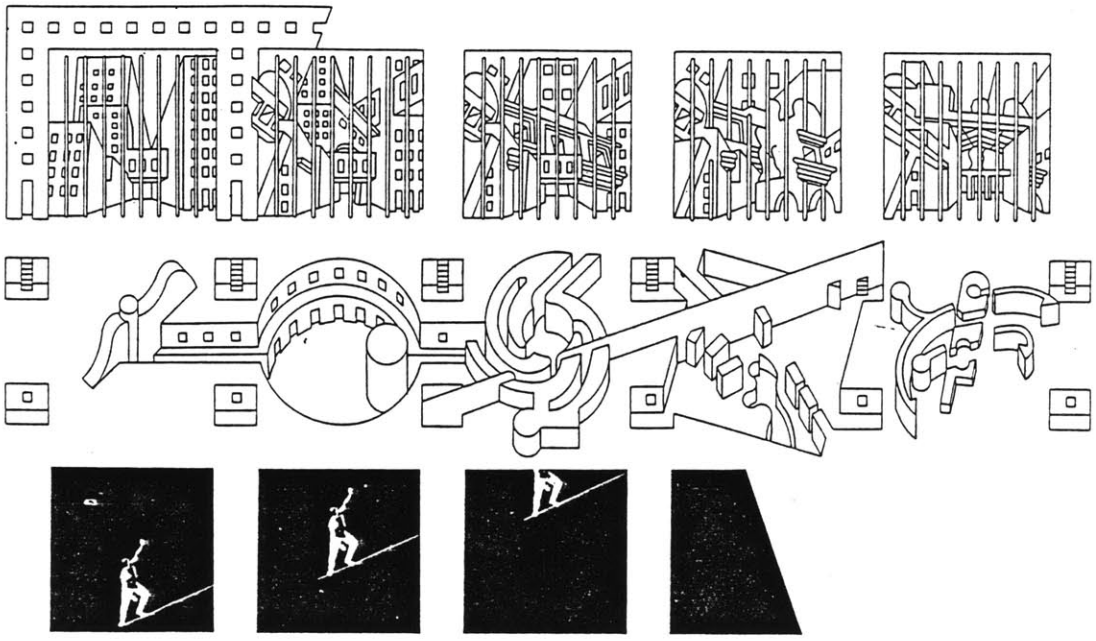
MT 2. Border Crossing

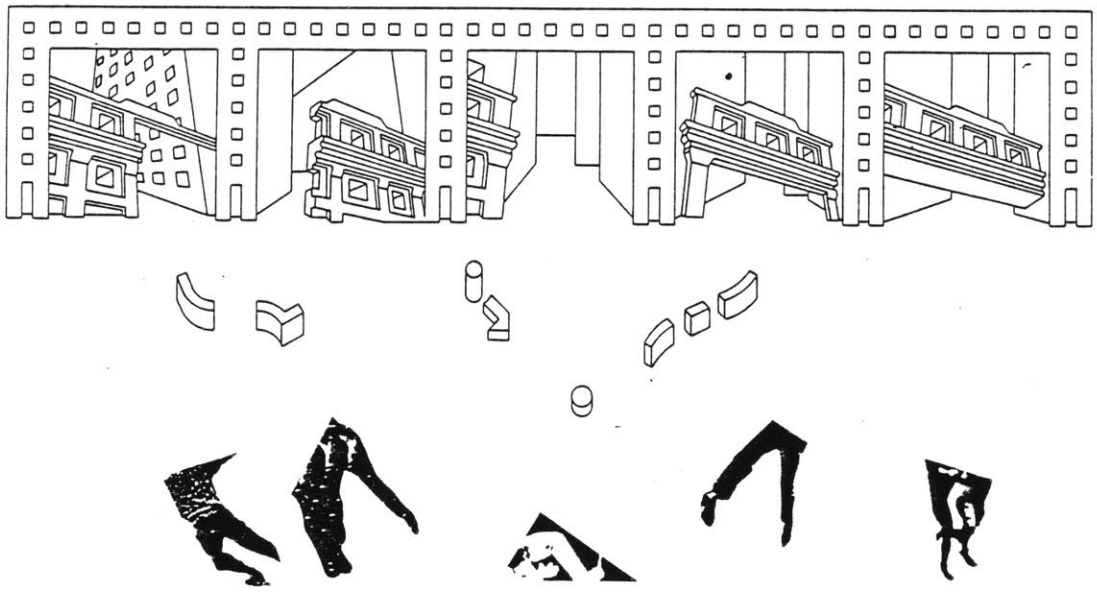
Fig. 83



MT 2. Border Crossing

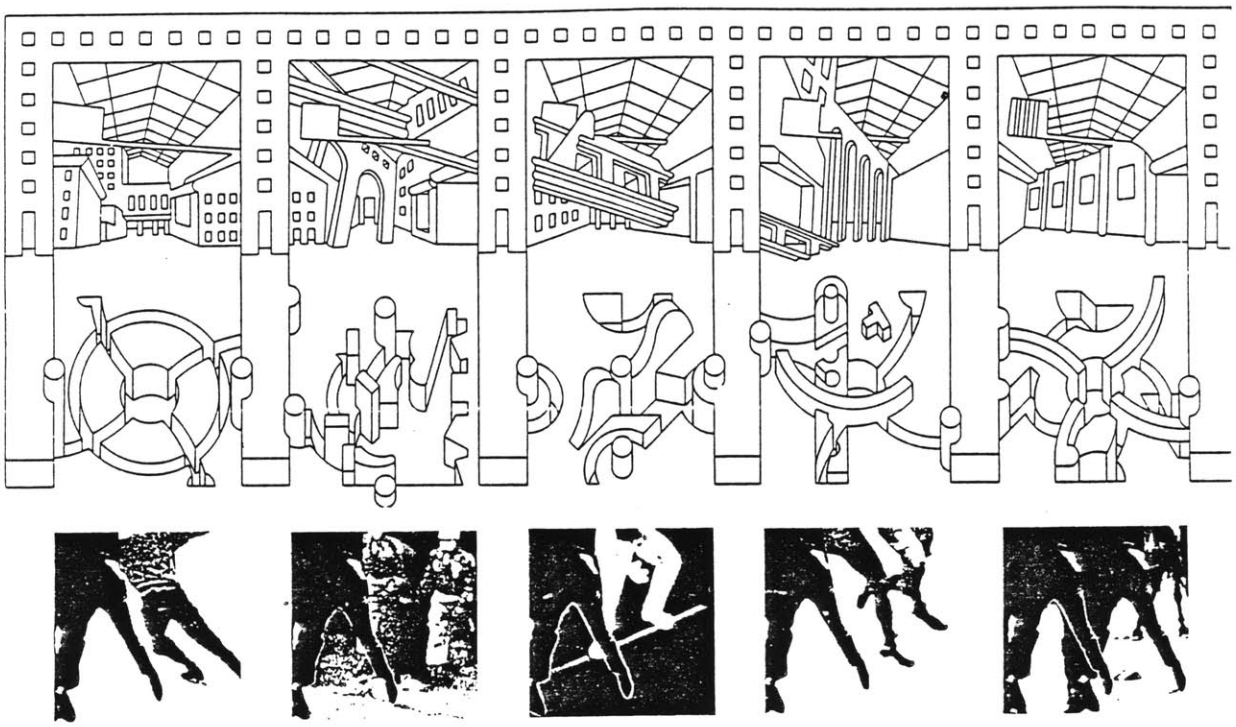
Fig. 84





MT 2. Border Crossing

Fig. 85



MT 2. Border Crossing

Several borders mark the story that he depicts, each one is an integral part of a surrounding space, for borders are not only seen as the limits between two places, but as the forbidden space 'between dream and reality', 'acceptance and rejection', 'reason and madness'.

These constructs explore architecture as the experience of limits.

The transcripts always presuppose a 'reality' in existence, a reality waiting to be deconstructed and eventually transformed. In essence it attempts to play with the fragments of a given reality, at the same time a rational structure of abstract concepts, *while constantly questioning the nature of architectural signs.* 'The Block', Manhattan Transcript 4, is another good example describing the configuration of space and object in the built environment [Figs. 79–85]. It consists of a simple city block with five inner courtyards that witness contradictory events and programmatic impossibilities. Disjunctions between movements, programs, and spaces inevitably follow as each pursues a distinct logic, while their confrontations produce the most unlikely combinations. Looking at these sequences/frames is an inter-active and participatory process since it also means that they have to be constructed, since they exist in three distinct parts as expressions of one reality.

a. the world of objects, composed of buildings abstracted from maps, plans, photographs.

b. The world of movements, which is abstracted from choreography, sport or other movement diagrams.

c. The world of events, abstracted from news photographs.

The main philosophy is that these three elements

Space

Event

Movement

combined, make a ground for all architectural experiences. My aim is to maintain the contradiction between object, man and event in a new reciprocity and conflict. Their meaning is derived from the order of experience rather than the order of composition. Going back to Part I, and looking at Renzo Piano's work as constructed "Piece by Piece", *Tschumi's work can be called 'Frame by Frame'.* And as Tschumi says, it can be read as "an article or a film script, it seemed important to allow the ideas to unfold as paragraphs in a text, or footage in a film, in order to build up to a climax, to set a dramatic scene for reading and changing architectural vistas." Similar to Libeskind, the idea is to transcribe things that are normally removed from conventional architectural representation. Here emerge complex relationships between space - use/movement set - script type - program object - event. They, within their inherent contradictions, *explore unlikely confrontations.* And so follows a discussion of analogy, opposition and reinforcement. This is an architecture that works *'sequence by sequence'* through constant juxtaposition, as does contemporary life. Different readings of spatial functions are made possible. In their individual state, object, movement and event are discontinuous; only when they unite do they form an 'instant of continuity'. *Such distinction implies a dynamic conception, posed against a static definition of architecture.* The purpose of this tri-partite mode of notation is to introduce the order of experience, movement, intervals and sequences.

This de-compostion permits an individual interpretation of each part. The insertion of movement or program into the overall architectural scheme implies breaking down some of the traditional components of architecture.

It is interesting to stop briefly and examine the work of the Futurists, especially Umberto Boccioni. The notion of de-composition expressed by a fragmentation of frames, events, and objects was initiated by him in 1910. Boccioni in 1910 states in his 'Technical Manifesto of Futurist Painting', the idea of a 'Field concept of space', which is interpreted as bodies connected by geometrical force-fields. He further adds in his manifesto:

> "Sculpture in every country is dominated by the moronic mimicry of old inherited formulas, this blind imitation is encouraged by the ghastly facility with which it can be done."

All Futurist sculpture, whose basis was architectural was not only a construction of masses, but made in such a way that the block itself would contain the architectural elements of the sculptural environment in which the objects existed. In this way they were producing a 'sculpture of the environment' itself.

Sculpture, for Boccioni, was a way of modelling the atmosphere, he says;

> "I feel it, seek it, seize hold of it and emphasize it by using all the various effects which light, shadows and streams of energy have upon it. In this way I create atmosphere."

After understanding this fact of Futurist sculpture, which was really a definition of form, space and light, we begin to 'see' the shape of the environment, a form emerging out of emptiness. Much of this was really to find a followthrough in the realm of architecture. This was a step towards the perception of analogous phenomena. There was found a tangible measuring of what formerly appeared to be empty space, this was a clear superimposition of new strata on objects and the space which determines them. An infinity of lines and currents emanated from their objects, making them live in an environment created by their vibrations. Adding to this Boccioni says about cinematography:

> "We are looking for a symbol, or better a single form, to replace these old concepts of division with new concepts of continuity."

And thus any movement viewed as a transition from one state to another was considered indivisible.

'Dynamism', for the Futurists was a lyrical conception of forms interpreted in infinite manifestations of the relativity between absolute motion and relative motion, between the environment and the object, which come together to form the appearance of the whole ie; environment and object.

It was the creation of this form, that expressed the relativity between weight and expansion, between rotation and revolution, that defined life as a form composed of an infinite succession of events. This dynamism found a new meaning for form and created a new definition for function, and Boccioni sums it up when he says:

> "Dynamism and sculpture is therefore, an evolutional concept of a plastic reality. It is the reflection of a sensibility which conceives the world as an infinite prolonging of an evolutionary species. This is life itself.. the form of forms...continuity."

Tshcumi, in his work seems to strive for a similar unity through a fragmentation that is sequential, and progresses frame by frame to define the 'whole'.

Establishing a tradition amounts to forgetting its origins, and so *'truth' in architecture* becomes only an imaginary structure, merely a memory of all that has been found along the way. The inter-action of *rupture, consciousness and imagination, action and motive,* suggested by this particular self-awareness casts a doubt on the very notion which the make-believe world of reason depicts. *An analogy can thus be made between reason and fiction.* Turning now to the manifest reality of Tschumi's work as a continous reference and link to the above, we see that Tschumi divides his work into three parts:

a. Transformational

b. Spatial

c. Programmatic

This *leads* to the *notion of 'autonomy in architecture' and the importance of the 'autonomy of metaphysical freedom'.* The human predicament of making choices in a purposeless universe, where moral law and being, man and nature have parted company, and *so the ultimate goal is to reveal a new reality. The essence of meaning* is caught between *object and perception.*

Tschumi's use of photographs suggests that an internal logic can function in varied ways. It not only acts as a metaphor for the architectural program, by referring to events and people, but can be read in juxtaposition, independent of the drawings.

Central to them is their interaction with each other. The *narratives implied by these composite sequences may be linear, deconstructed or dissociated.* It deconstructs programs, in the same way that it deconstructs forms and movements, then it 'fades in', distorts and disjoins, always dealing with discrete, discontinuous moments, for each frame can always be exchanged for another. His 'transcripts' inevitably suggest the analogy of film. Beyond a common twentieth-century sensibility, both use a frame by frame technique, the isolation of frozen bits of action.

They always display at least two conflicting fields:

a. the framing device = conformist, normal, predictable and regular.

b. the framed material = something, a place, that only questions, distorts, compresses and displaces.

Frame by Frame

What is important is the play between them, their distance and its occasional transgression, when *the frame itself becomes the object of distortions.* Endless possibilities can be given to the narrative sequence.

In the end, these combinations are nothing but a form of editing, of montage, where stage and 'audience–space' are ultimately reversed *and action becomes its own representation.* Such becomes an architecture of surprises where space is broken apart and then re–assembled.

Thus space follows space, not necessarily in an expected order, but in a series of dramatic revelations that can announce a new spatial structure. And so as Tschumi says:

> "Ultimately the spatial relationships and physical dimensions of objects that change with each viewpoint are like movie shots from above, that are intercut from those below, reality is made infinitely malleable, so that emotive, dramatic or poetic attributes can change and unfold."

This relates directly to the creation of Surrealism which in the end became a drama of representation. Imagination, liberated and unrestrained, became the sole power creating reality = surreality.

Ultimately Dada and Surrealism are not just of marginal interest, but they are one of the means by which *our conception of what constitutes the 'order of things' has undergone an irrevocable transformation.*

Dada and Surrealism become symptoms or points at which the 'codes of representation' are opened and dissolved. Architecture has not been immune to these methods and uses – we find the idea of collage, an architecture composed of 'fragments' historical or otherwise, and thus an ontology that has been transformed in position and material.

What becomes obvious out of all this is that the modern world has suppressed the irrational, has eradicated the idea of chance, or the intervention of fate and in so doing has eroded the subjective and passionate.

Breton was acquainted with Le Corbusier in Paris in 1922, at a conference called by him (Breton). He wished to clarify the new tendencies and directives of the modern spirit. Both the Surrealists and the purists regarded themselves as 'modern' in spirit as well as action, although of entirely different theoretical disposition.

The trend they started, of making the 'ordinary,' extra-ordinary, through a transformation of scale, material and use has continued through to trends in architecture today. An example of this is the 'service system' of the past, which considered mechanical equipment of all kinds as banal and consciously suppressed it, particularly in 19th century buildings. In the twentieth century, this became 'fetishistic': the most obvious and self-conscious example is the Georges Pompidou Center in Paris.

Today, exemplified by the work of Tschumi and Koolhaas, we have moved away from that and are charting new directions in concept and expression, those that are based on experience, motion and interaction.

Replacing Fetishistic Architecture

Much of Tschumi's work and many of his concepts seem to be derived from Frederick Kiesler of the Surrealist movement. In 1947, the Surrealists organised their first post-war international exhibition at the Maeght Gallery. Kiesler realised, together with Miro, Ernst, Duchamp and Matta, "The Halls of Superstition", a gigantic collective manifesto in space. Kiesler felt that:

"the new reality manifests itself as a changing reality of events, these are not only based on the five senses, but also take psychic needs into consideration".

Kiesler in this way introduced a new dimension into architecture, where events could not be dissociated from spaces, and where spaces could not be separated from deep unconscious processes.

Tschumi's work seems to represent this conflict through his inter-active sequences of

space - event - action

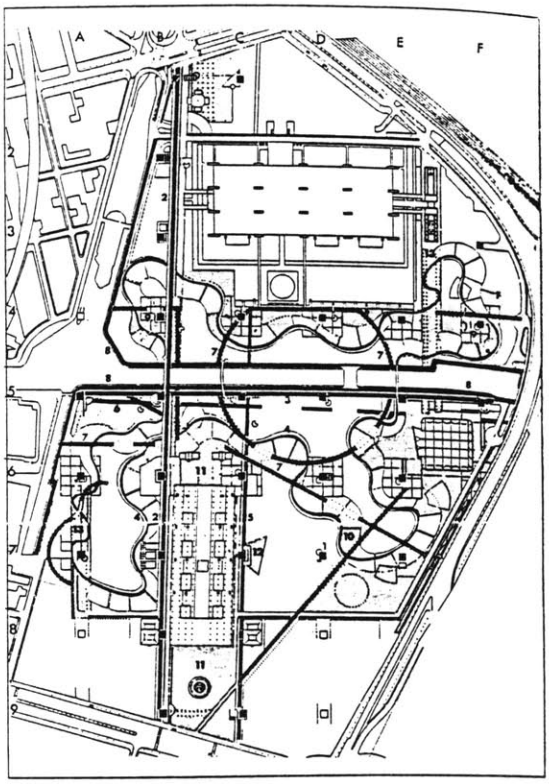
but with the added inference of a vastly changed world. A world more dominated by information technolgy. A world continuously *more inter-active,* where *people and events blend into a continuum and become mutually supportive where the city, activity and content is injected into the structure of open space: i.e. the park, Parc la Villette.*

Parc la Villette: Programmatic Explosion

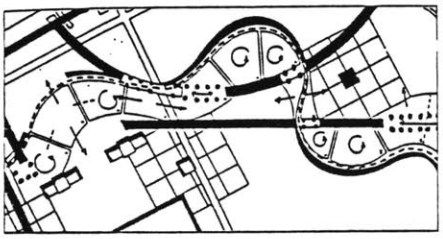
Parc La Villette is a project that has deep conceptual currents/implications. It supports itself on principles that have been precisely defined, by operating modes that are applicable at various levels of development. This strategy can be applied to any project that deals with programmatic explosion. From this gap between strategy and given project results the relative autonomy of the formal work that crosses each other and overlaps.

Finally the project can be put together and taken apart like a *machine,* like a *mechanical device withvarious cogs and different circuits that are integrated and function in parallel.*

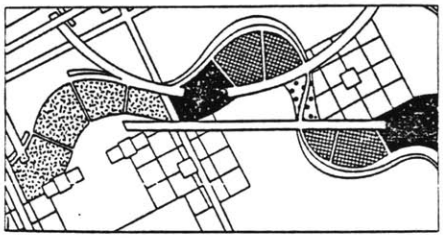
Fig. 86



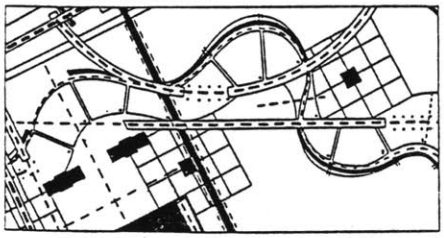
CHEMINEMENTS DANS LE PARC



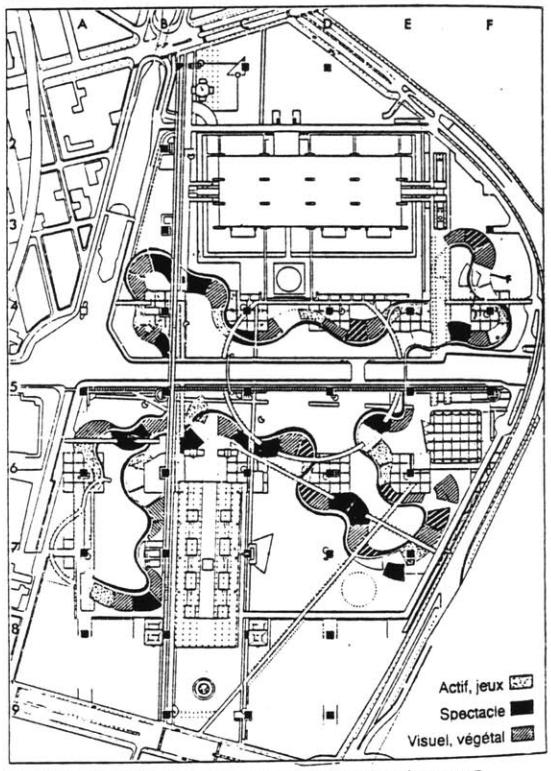
CONDITIONS SPATIALES



PROMENADE CINÉMATIQUE



MOUVEMENTS

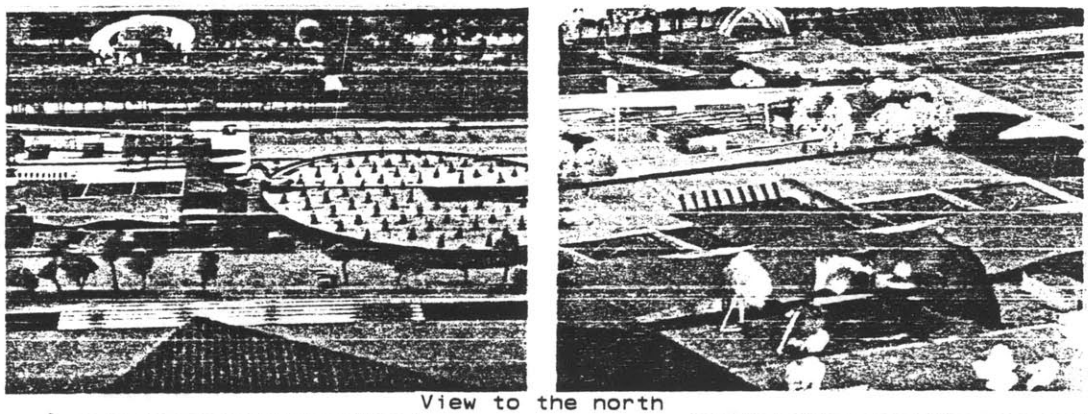


LES JARDINS THÉMATIQUES DE LA PROMENADE CINÉMATIQUE

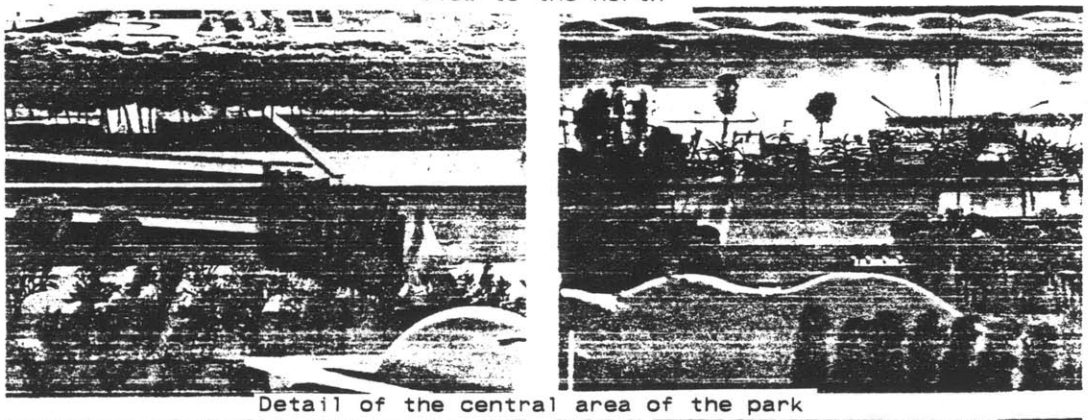
« MÉLODIES » : AMBIANCES D'ESPACES

The Parc de la Villette in the north-east of Paris

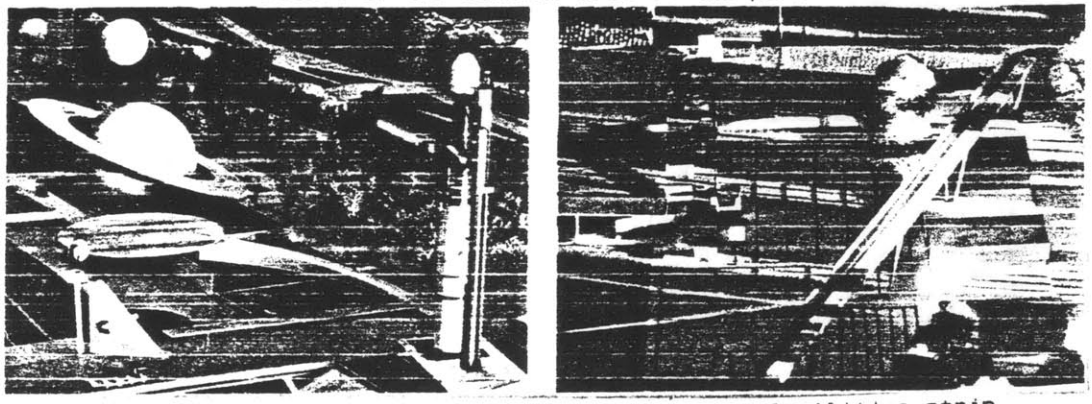
Fig. 87



View to the north

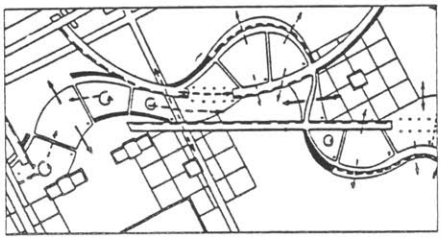


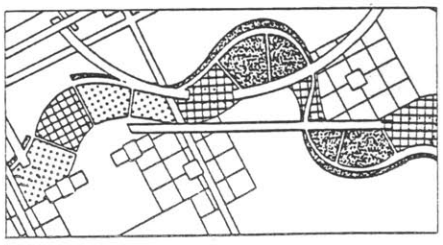
Detail of the central area of the park



Astronomical gardens

Supporting facilities strip





RELATIONS VISUELLES

The above explains an emerging synthesis between concept and expression, germinating out of surrealist notions, to the physical explanation of the project becoming analogous to the information revolution. The architecture manifests itself a series of mental constructs: namely, sequences. But at the same time it functions like an electric circuit- a machine almost- dictated by grids and circuits.

The strategy adopted shall be flexible enough to accept all the transformations and additions that are necessiated by a program, such as this, for a century we do not know much about - the 21st century. This is a part meant to 'attract' people through activity and content. Where Tschumi defines a super-imposition of different places that act as '*Magnetic Fields*', that are represented by '*Les Folies*'. The program is split into a series of 'parts'. These parts are re-constructed around autonomous, distinct structural systems [Figs. 86-87].
The Grid defines

a. points of intensity,

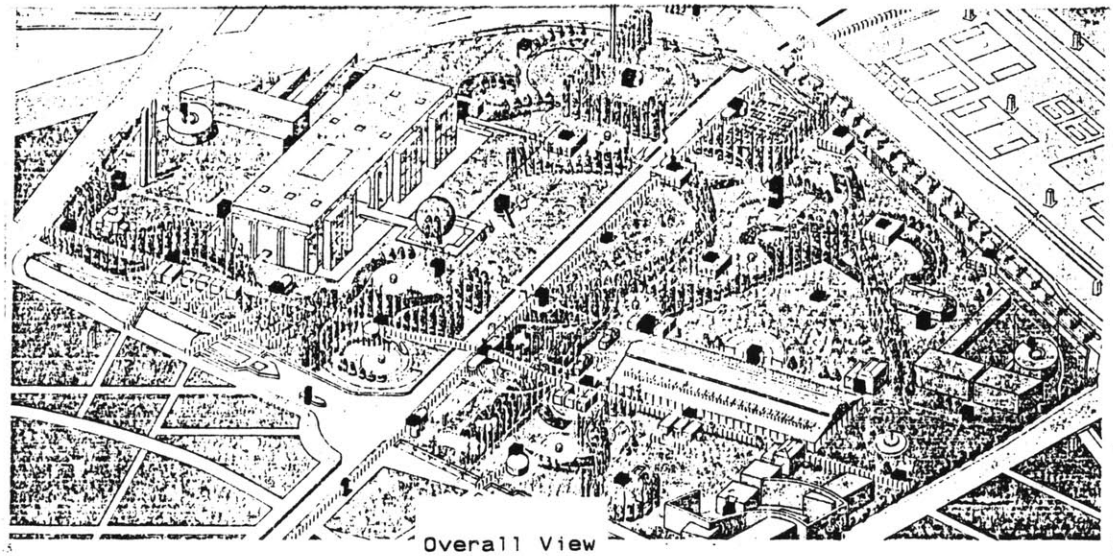
b. lines of motion,

c. composed surfaces.

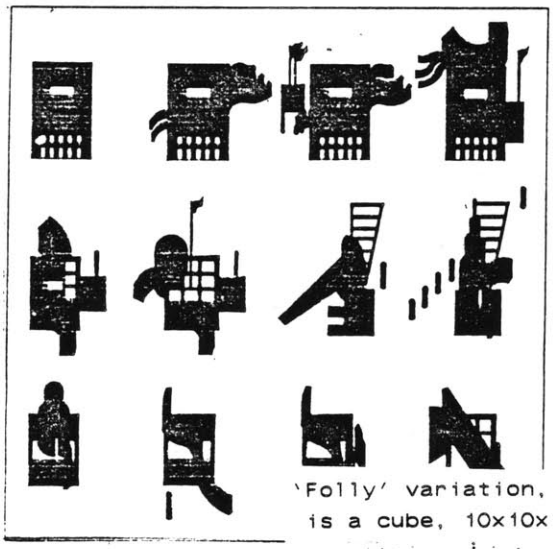
Super-imposition of these 'autonomous systems' on the site creates random situations, which are unexpected and often conflicting. These situations become a starting point in his architectural work, one that re-inforces programmatic and formal tensions.

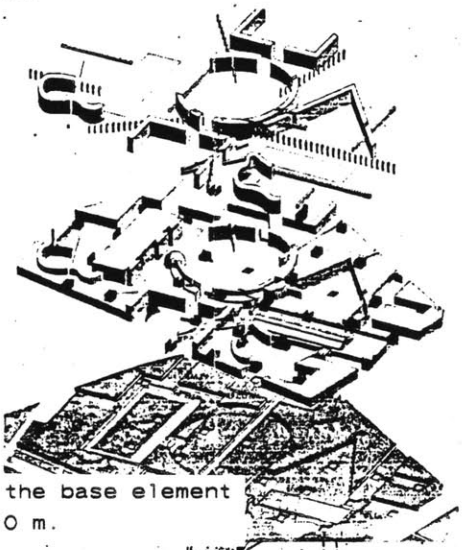
The 'Folies' are not purely random, but are constituted through a combination of 'fragments'. These are deducted from complex rules of transformation, quite different from Durand but closer to de-constructivists like Derrida, Joyce and Vertov.

Fig. 88

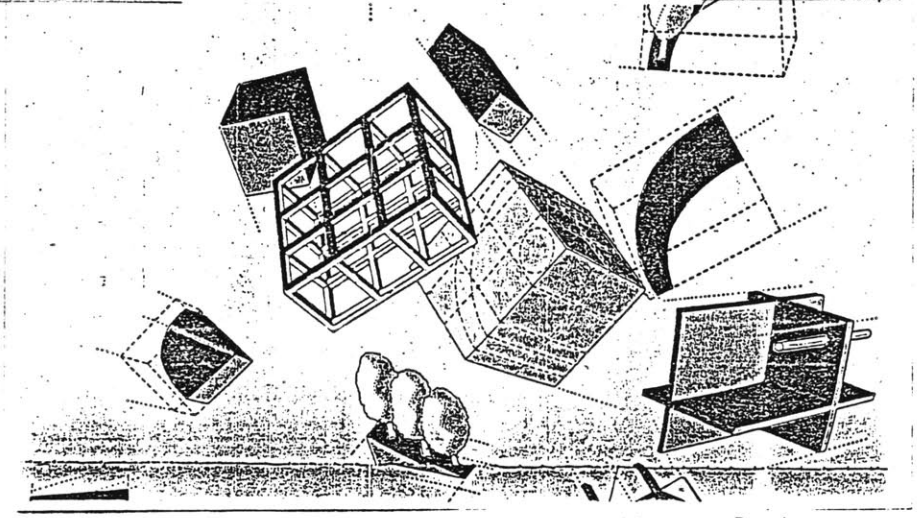


Overall View





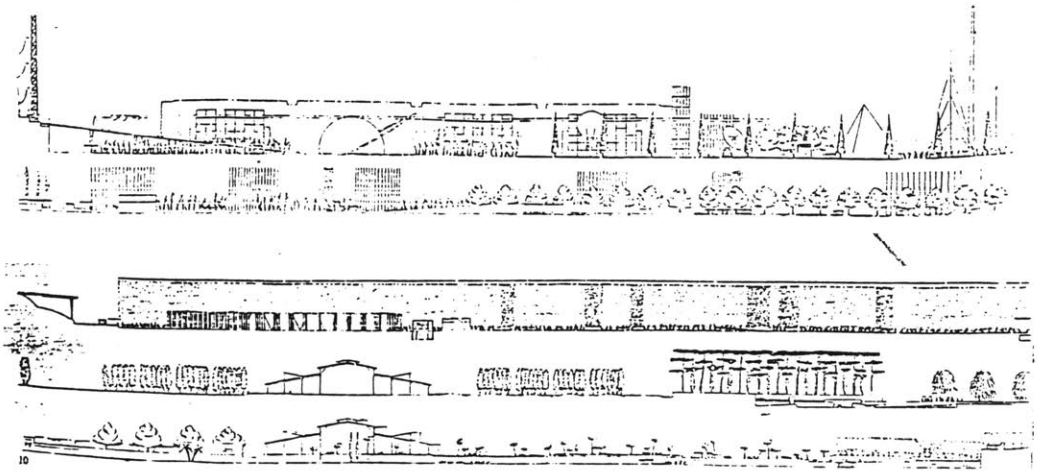
'Folly' variation, the base element is a cube, 10x10x10 m.



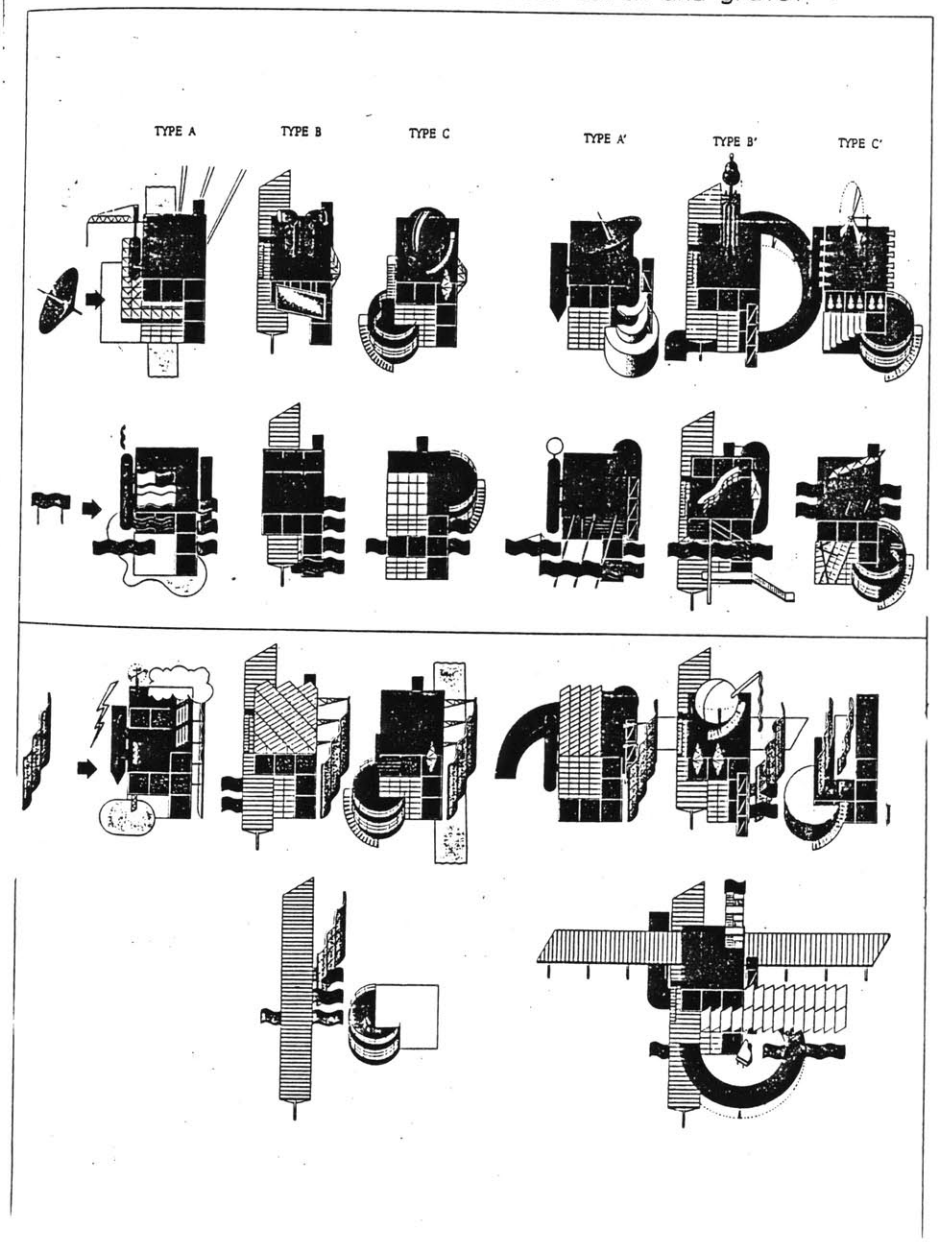
Programmatic Layout for Parc La Villette, Paris

Bernard Tschumi

Fig. 89



The lawns: areas of beaten earth and gravel.

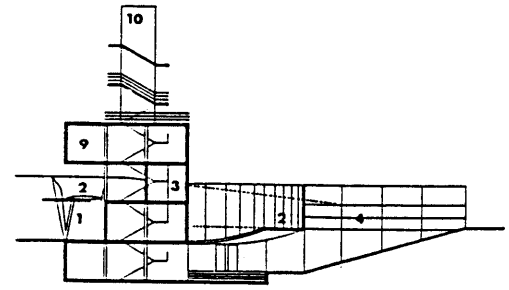


Types of Folies

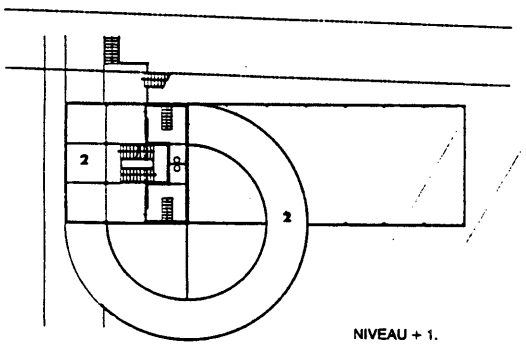
Fig. 90

FOLIE B5 NORMALITÉ

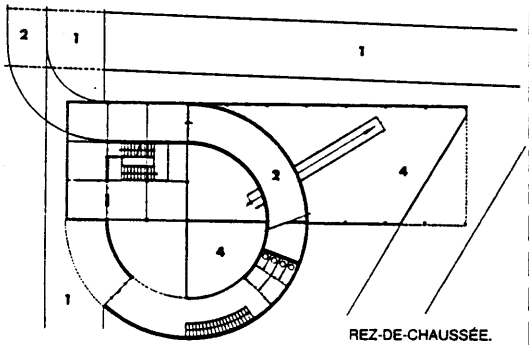
1. Galerie.
2. Piste de jogging.
3. Vestiaire de jogging.
4. Serre.
5. Piano-Bar.
6. Bar.
7. Café-Théâtre.
8. Cuisine.
9. Terrasse.
10. Belvédère.



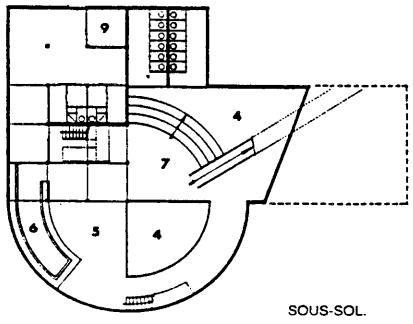
COUPE.



NIVEAU + 1.

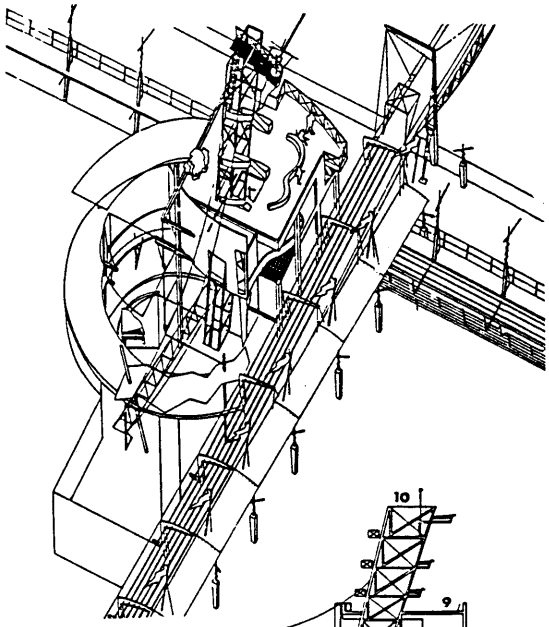


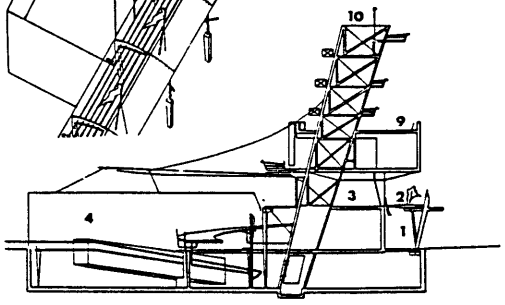
REZ-DE-CHAUSSÉE.

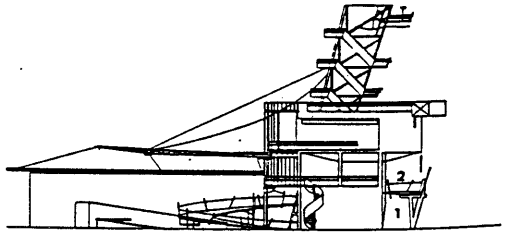


SOUS-SOL.

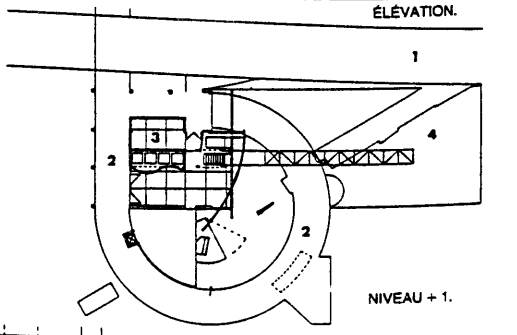
DÉVIANCE



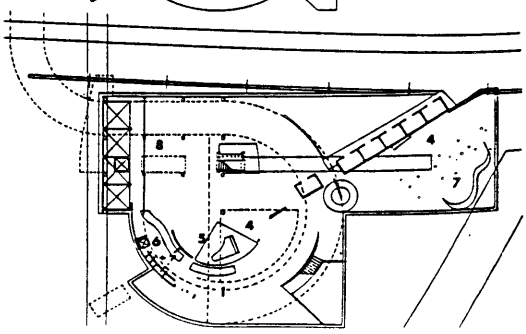




ÉLÉVATION.

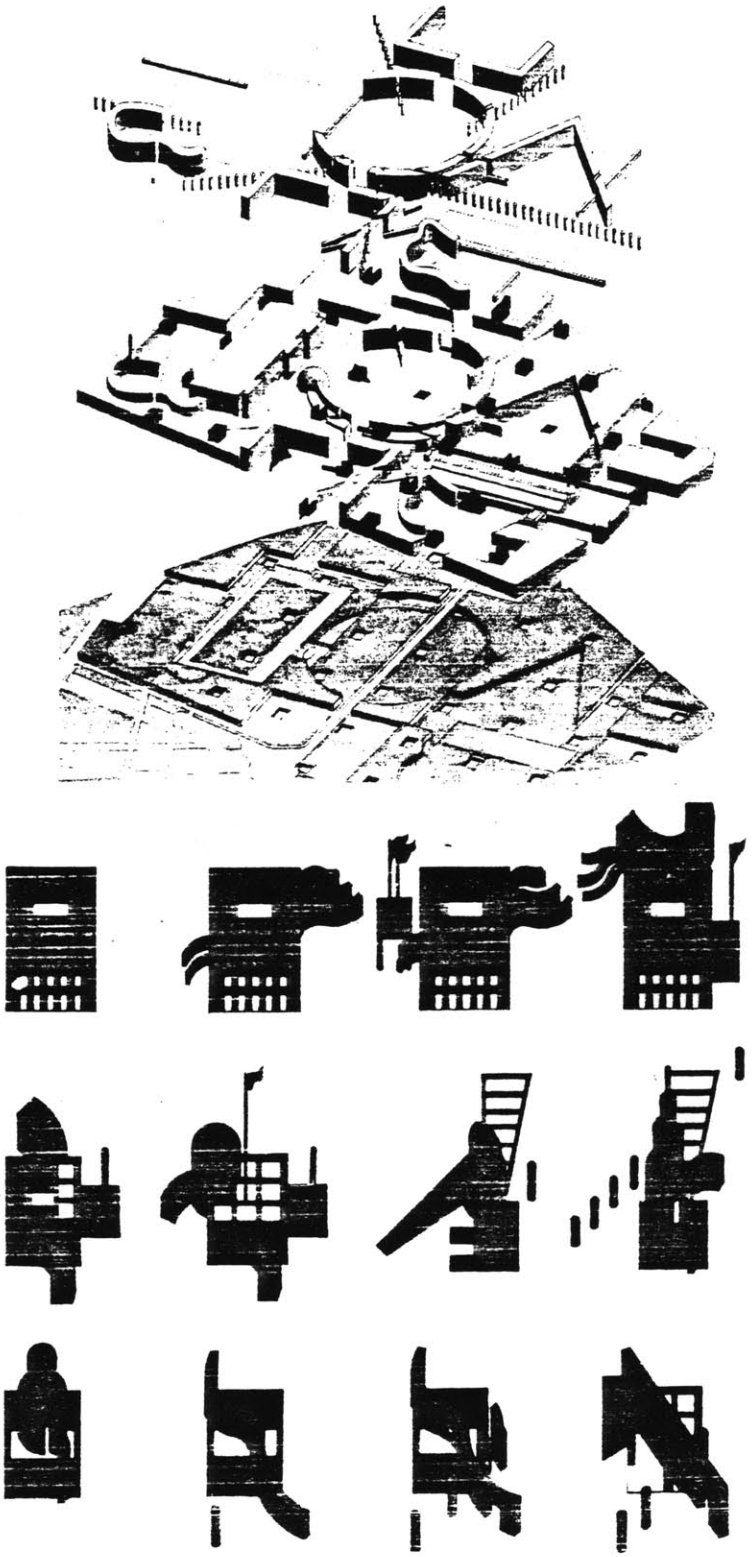


NIVEAU + 1.



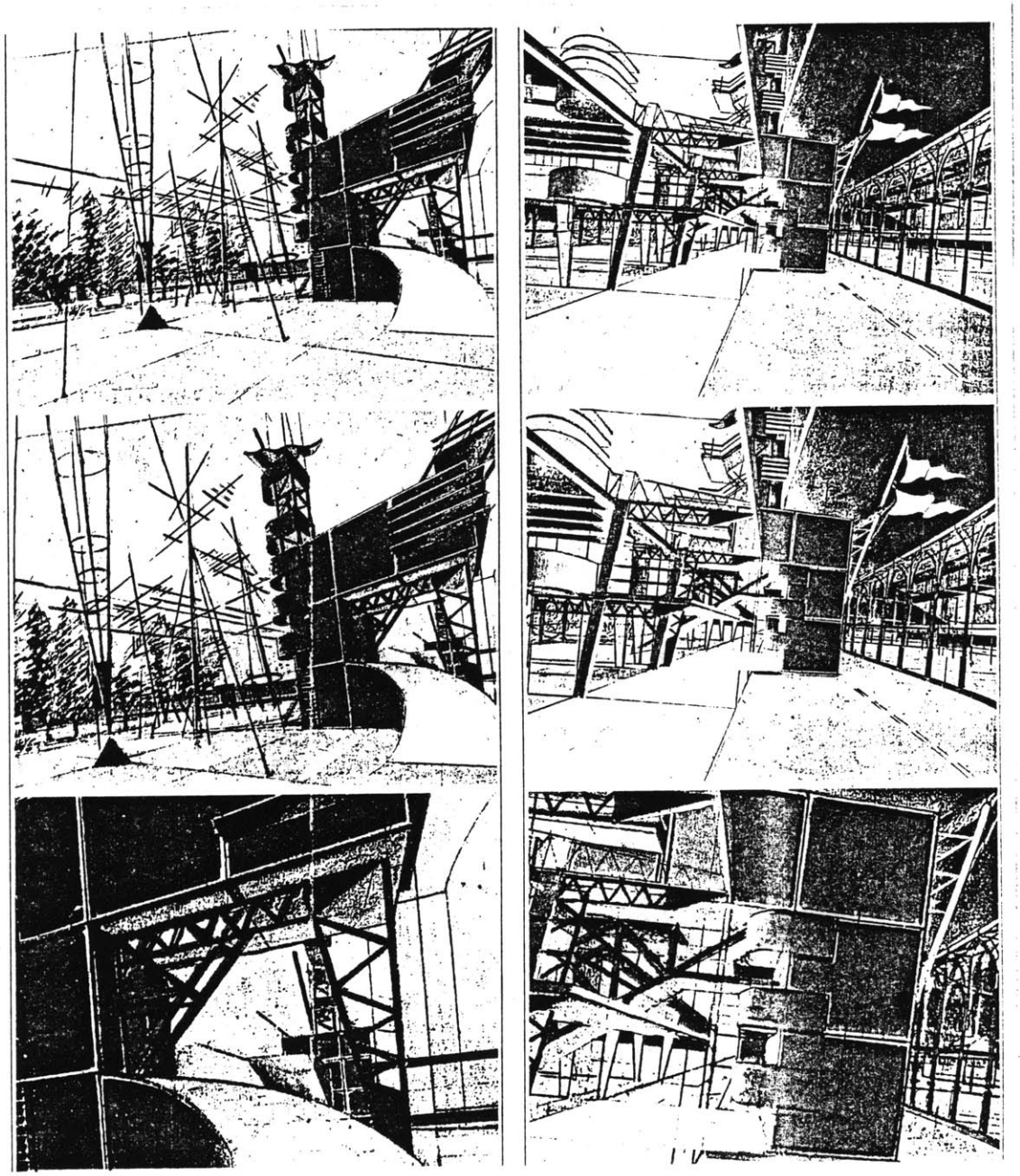
The Folies Folie B5 Normal Deviant

Fig. 91



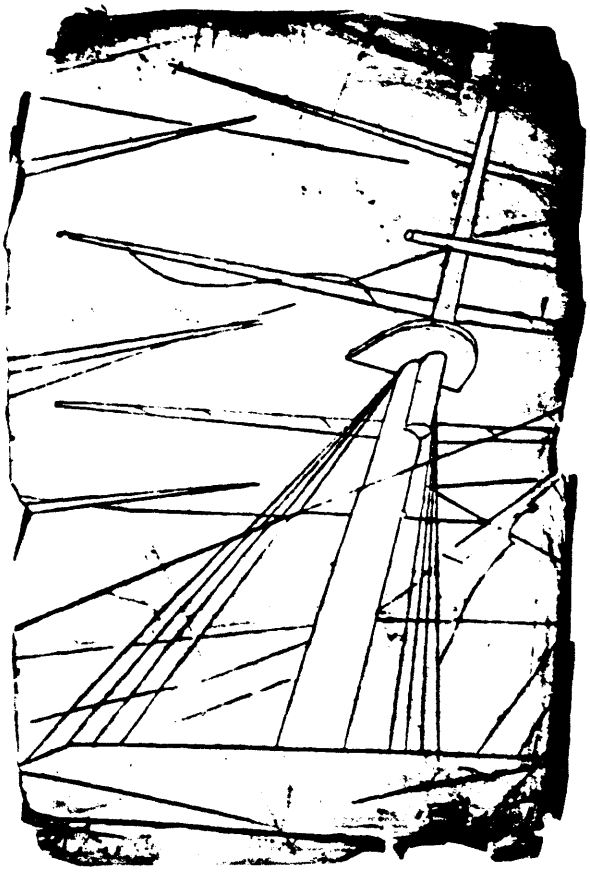
The Built Elements 'Follies', distributed according to the Grid, every 120 m.

Fig. 92



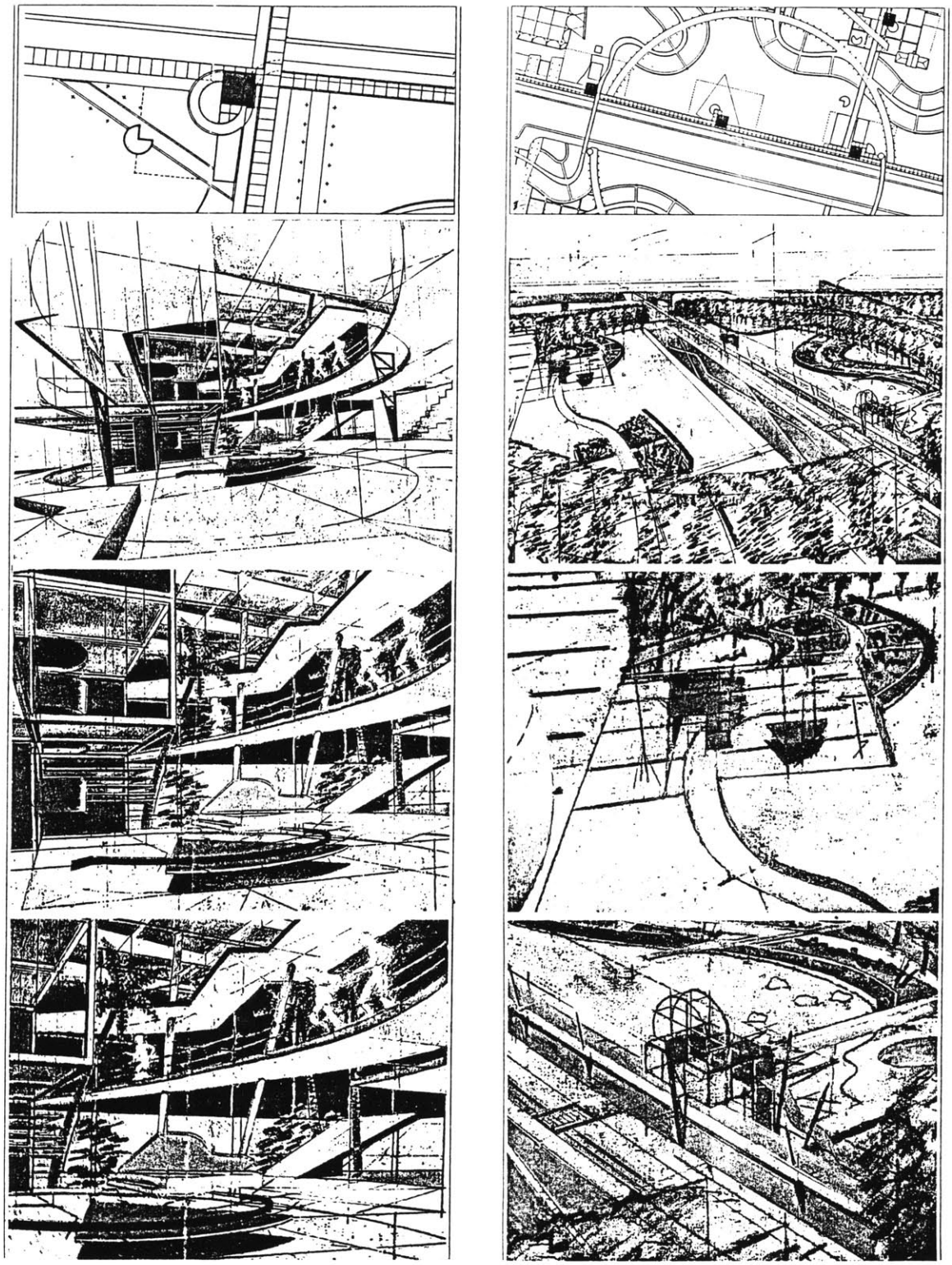
View of the Park Construction of Folies

Fig. 93



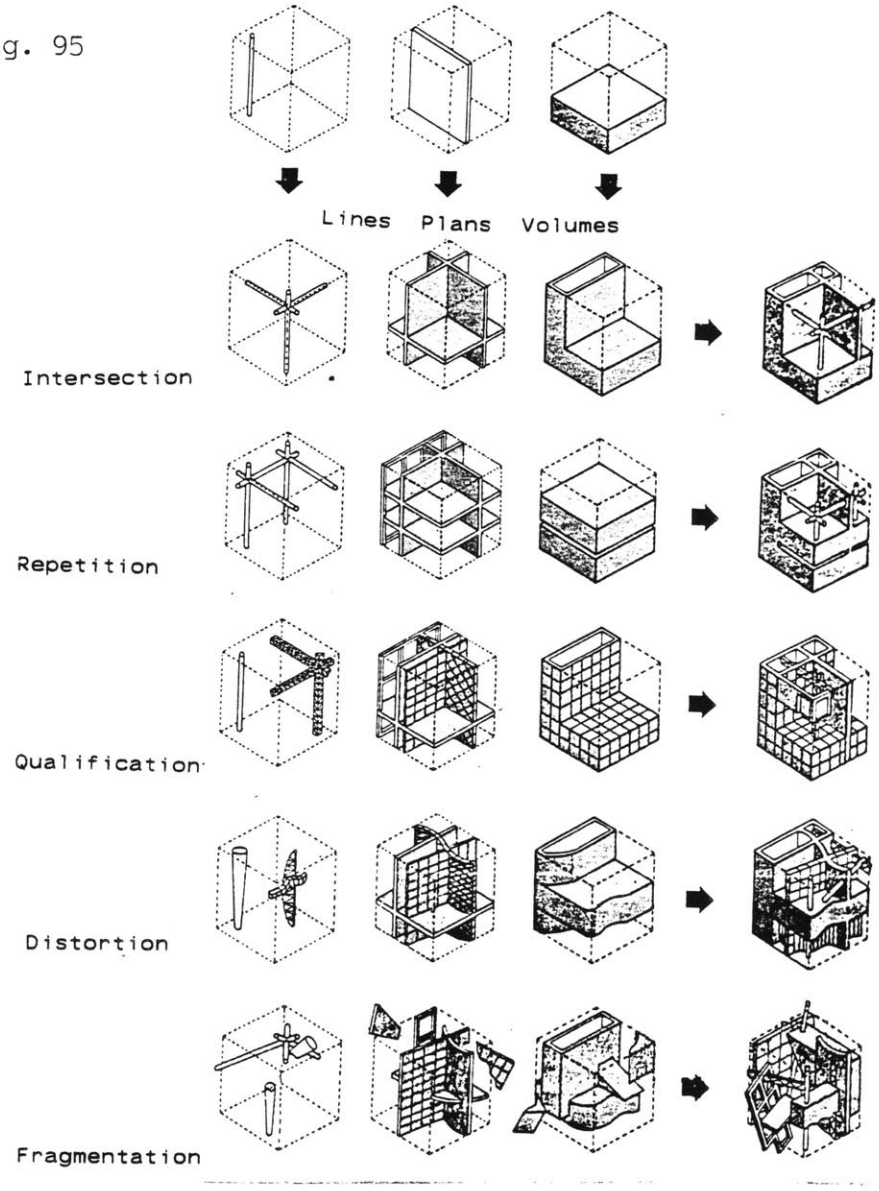
Vladimir Tatlin: Drawing from a series of stage designs for the 'Flying Dutchman', 1916

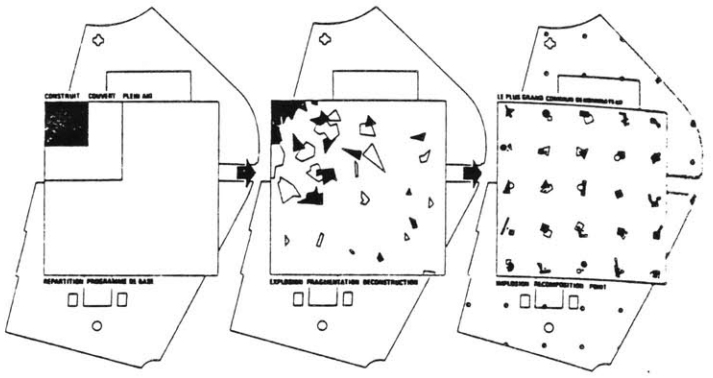
Fig. 94



The Folies

Fig. 95





Base Program
Explosion Fragmentation Deconstruction
Implosion Re-composition Point Frames
Bernard Tschumi

Les Folies

The Folie is an anchorage point for the new park. The ambiguity seems a good illustration of the end of the 20th century; it shows a dissassociation

between: use - shape - social values.

The word 'Folie' is associated with its psychoanalytic meaning: *unreasonable or the absence of meaning.* Extreme caution must be taken to incorporate it literally as the *'constructed object'.* It does not signify the extravaganza of eclectic styles, but on the contrary *is a conscious juxtaposition of spaces and programmes without precedent* [*Figs. 88-94*].

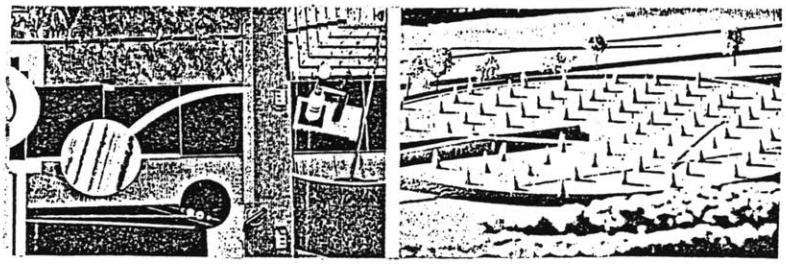
Explosion and Implosion

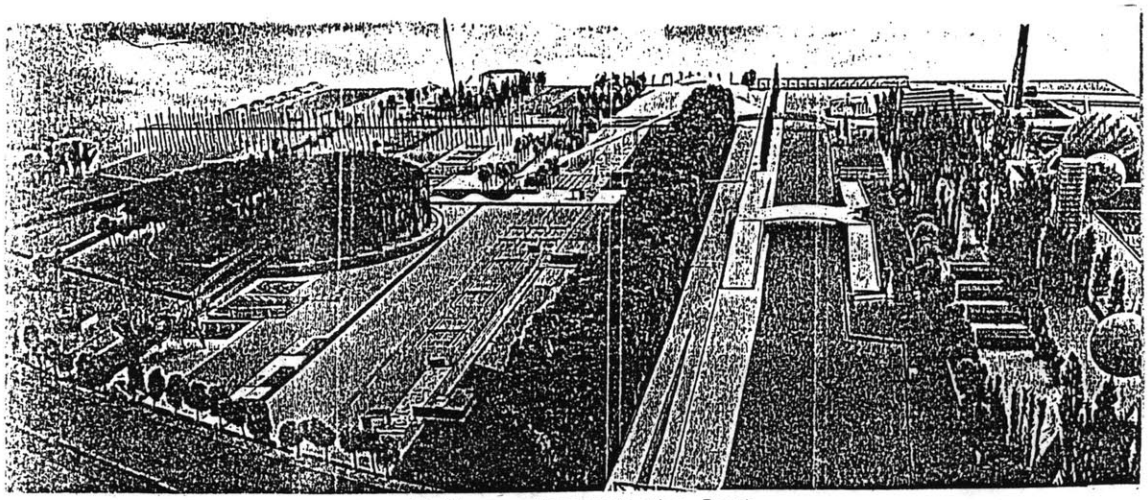
The project is defined by a rigid grid. However, it is expressed through a series of 'Explosions' and 'Implosions'. They are thus the result of a global explosion manifest in a 120m x 120m regular grid. This *frame is the strategic tool of La Villette: it articulates the space and intention by refusing all hierarchies and compositions. It rejects all the a priori of large, massive plans of the past. In other words, a 'Punctuated Grid' forms a series of anchorage points which gather the fragments like a magnet.*

The Cube

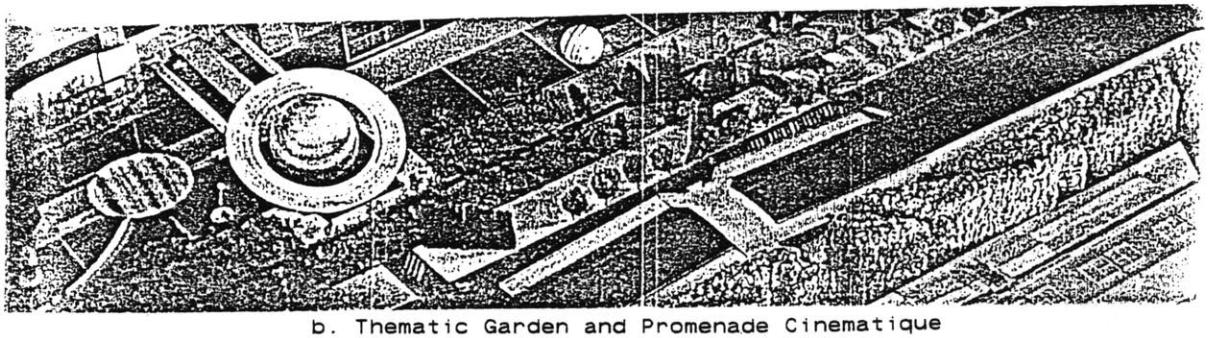
De-construction - Re-construction: this results in manipulation of these desired events based on a cube 10.8m x 10.8m [Fig. 95]. In all there are 35 folies. It is the programmatic and aformal combination which explores certain complex transformational relations starting from;

Fig. 96



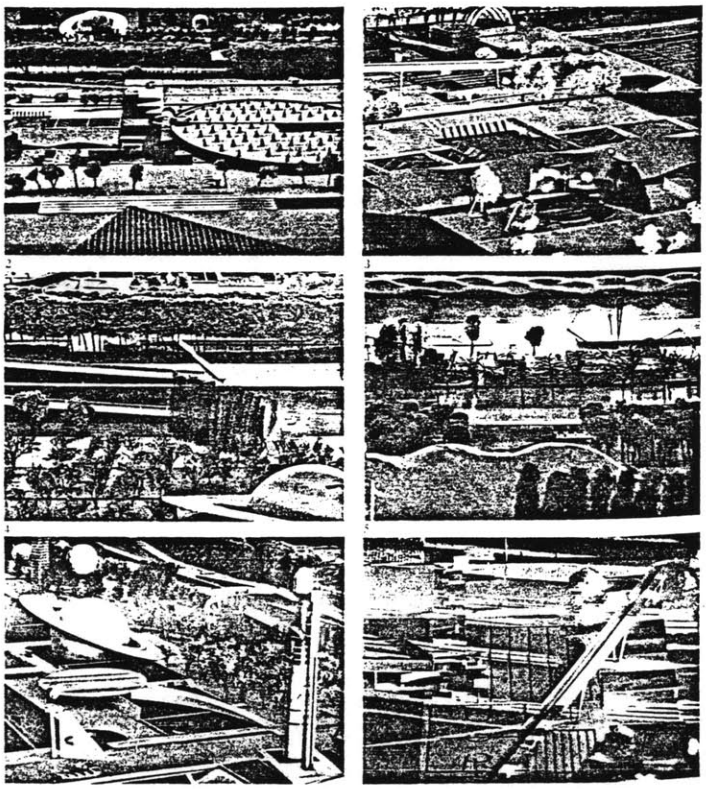


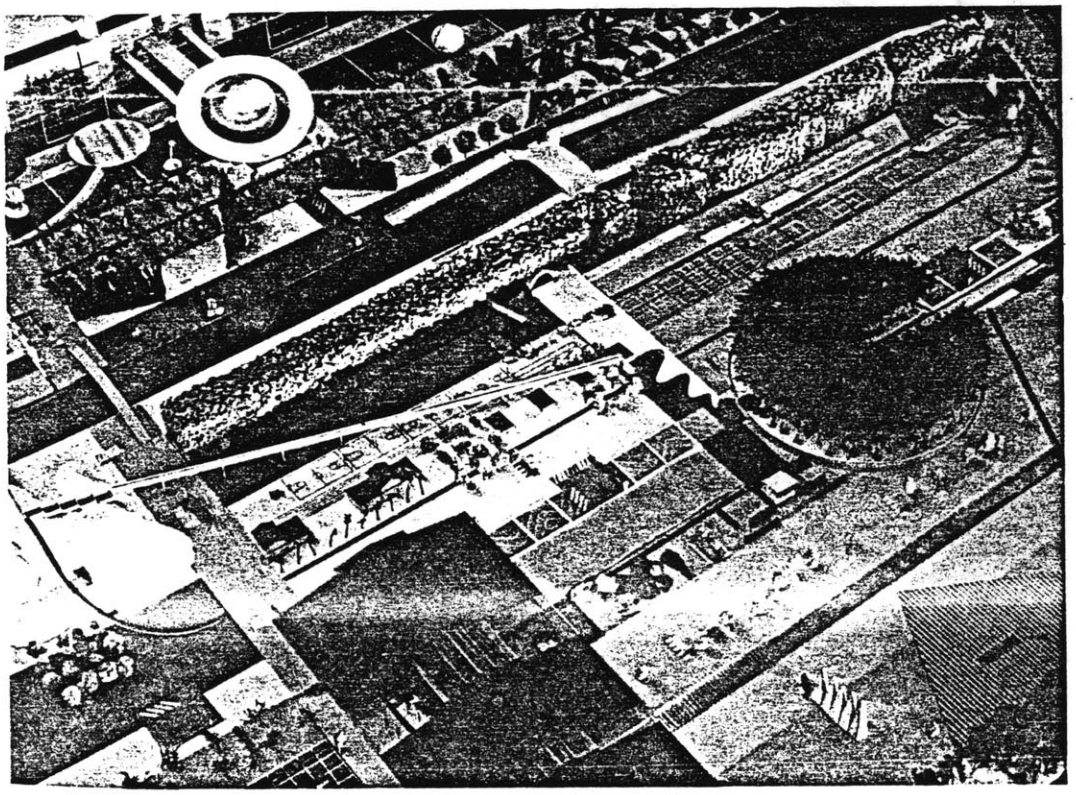
a. Walkway through the Park



b. Thematic Garden and Promenade Cinematique

Fig. 97





Overall View

a. The decomposition of the cube

into a component of motion like railings, stairways, etc.

b. component of closed space and re-constructing precise

mechanical operations

Orthogonality:

Normality and abnormality refer only to the internal methodology of design. A normal folie is only that on paper, before the combinatory process and the realization of an abnormal one.

Pathlines: Lines of Flux In constructing these, Tschumi goes back to his notions expressed in his earlier 'transcripts' and 'manifestoes', that of the '*Sequence*'. In Parc la Villette, he introduces '*randomness and unpredictability*', and we find sequence of trails, plains, passages, canals, cuts and gardens. All this is introduced through the spontaneity and notion of the visitor.

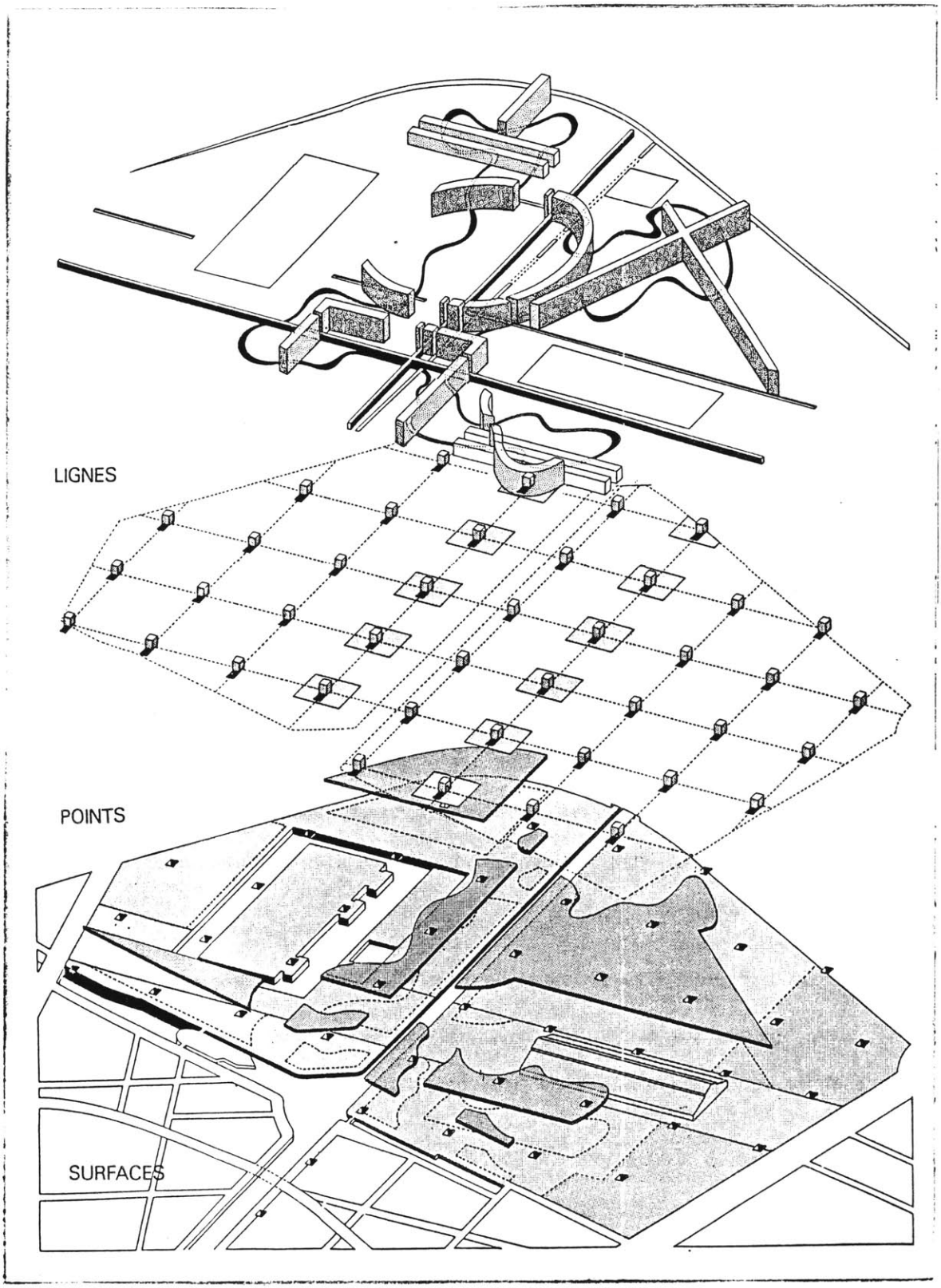
Co-ordinated Axes: Feeling for a Grid The various galleries in the project play an organizational role; however this stays shared with the folies whose 'red' (the use of color as a marker) reference volumes constitute the principle of "marking of space". This collection of objects, so heterogeneous and different, is not a negligible question.

Main Geometry: Distribution of Surfaces This constitutes the different stages of realization. During the elaboration, areas like pavement, grass, paths, hedges, trees and water contribute to mark dynamic changes.

Game of Sequences: A Contemporary Mood

La Promenade Cinematique. Explicit in this is the notion that movement and motion come before everything else [Figs. 96-97]. The action depends on the

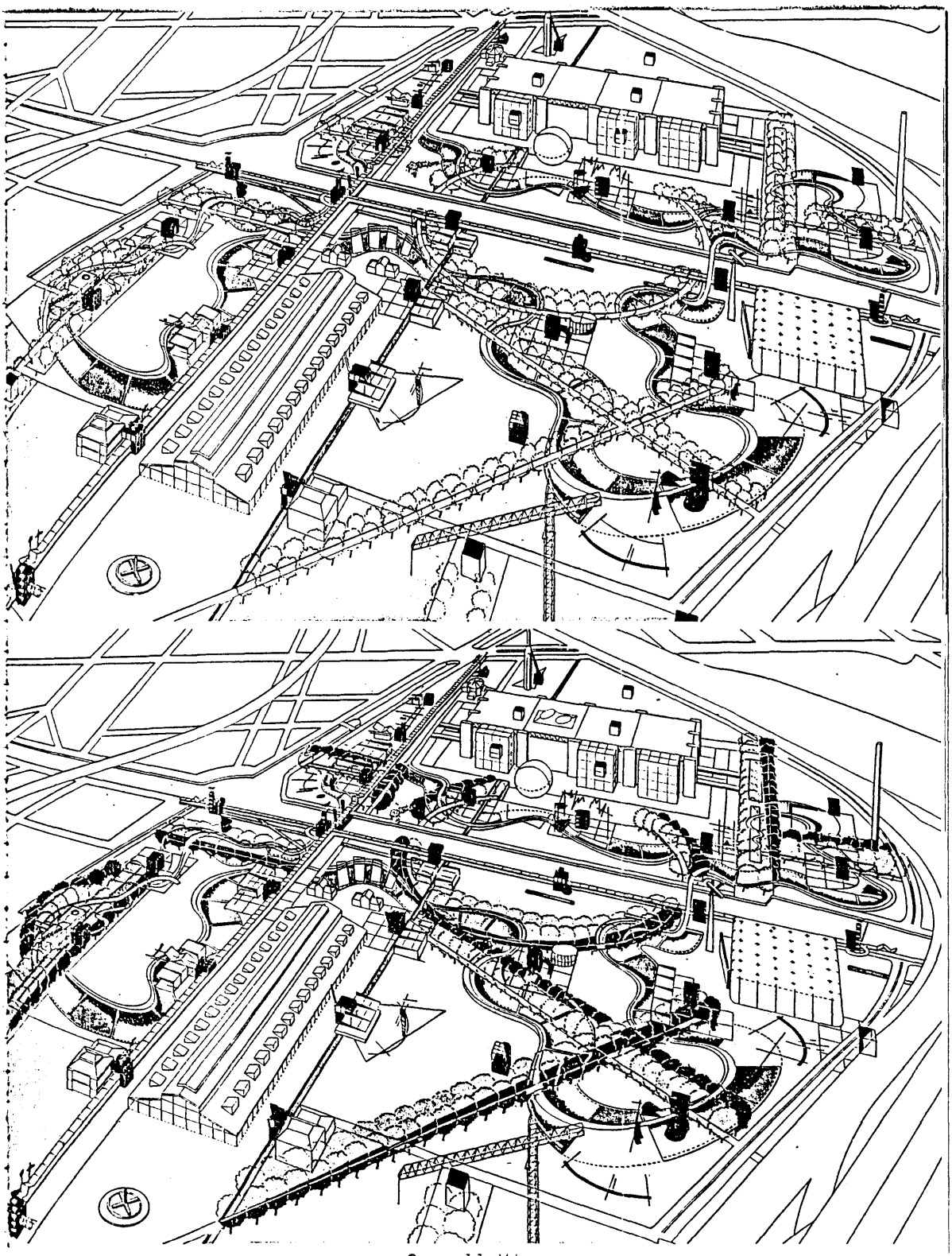
Fig. 98



Lines of Movement Super-imposition

The overlapping of the three systems:
Points, Lines, Surfaces

Fig. 99



Overall Views
Programme requirements split up.
and spread over the whole area

interventions inside the interior of gardens. As a metaphor, the 'Frame' of the garden corresponds to the images, and the continuity of the walk corresponds to the 'sound'. Each group is then organized into sequences. The junctions are made through cuts in alleys.

This walk through the park is conceived as *a band/strip of film that corresponds to successive picture frames of successive gardens. In essence it becomes a walk of experience and interpretation.*

Super-impositions

The interpretation of an activity, event or walk depends on the combination of the various elements [Figs. 98-99].

Architecture and Program

The idea is to expose definitions of architecture, de-construct and then re-construct them along different areas. We consider that

motion

object

event

are necessarily part of the definition of architecture, and that the contemporary contradiction between use, form, and culture suggests that the above architectural categories are interchangeable. Architecture thus is defined as the *conflicting relationship* between these three categories.

Reflected in the concept for 'La Promenade Cinematique' are images of patterns that were being explored by the Polish Constructivists in the 1920's. The work of Mieczyslaw Szcuka is important to trace. His works were inspired by impressionism and, to a degree, by Futurism and Dadaism. His painted and

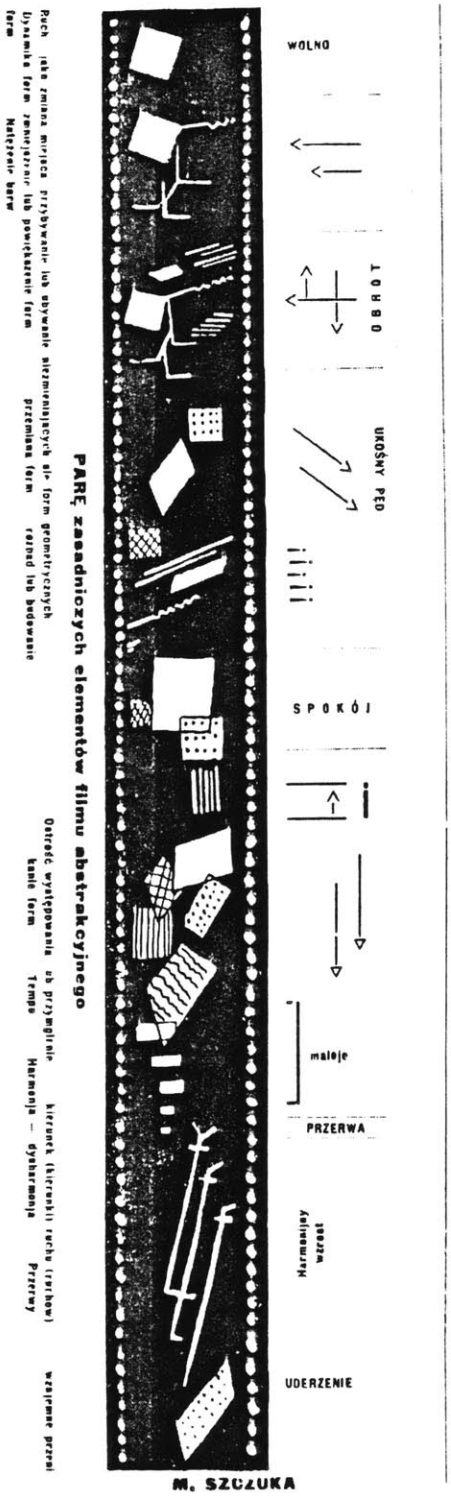
spatial abstract compositions and mobiles were the fore-runners of Constructivism. He was a precursor, the first theorist of photo-montage in Poland. In his architectural theory and practice he stipulated that systems of vertical and horizontal lines should inform the organizing principles, thus permitting their dynamic expansion in space and public life. The idea of continual progress stimulated an interest in space and building, and resulted in the concept of the 'renewal of architecture'. this was followed by the establishment of a new group with a broad program including both the visual arts and architecture as a natural combination.

Alongside painting, sculpture or architecture Polish artists, carried out experiments in the field of photography, photo-montage and film. Their quest was the consequence of issues merely hinted at in other branches of the visual arts. They exploited effects springing from the value and structure of photographic and film material. Photo-montage was the new discovery of the period, fascinating for its completely new method of affecting the spectator.

The essence of the photo-montage lay in the character of Constructivist form, yet the possibility of unexpected juxtapositions, the realism or symbolism of freely arranged quotations from reality situated it also on the framework of Dada.

The concept of 'montage' is, in its expression, closely linked with the word 'constructor', by which the artists of this generation chose to call themselves. An artist became the engineer of a work of art, combining multifarious materials in accordance with the new laws of aesthetics. This is Szcuka's understanding of photo-montage. Szcuka's first films were likewise an attempt

Fig. 100



'Some essential elements for an abstract film',
Blok no 8/9, 1924, M Szczuka

at a visual presentation of forms obeying strictly defined constructional principles.

In later works, Szcuka often used words in place of dynamic construction of geometrical forms. This broadens the impact of his works through reference to definite concepts or mental states. Szcuka's proposals were a particular example of the alignment of montage photographs with the needs of film [Fig. 100]. The dynamism of continually new successive images gave rise to the logical construction of films which rested on the principle of rhythmical change. These film and montage photographs spring from similar premises and from a concern for man's condition in the contemporary world. Film and montage analysed the expanding world of technology and examined the extent of the biological deformation of the natural environment.

Their task was the refutation of the old and the formulation of new hypotheses. There was no stopping the process of subsequent actions and counteractions. We find here specific formulas of the principle of 'space-time rhythms'.

Tschumi continues the link when he defines the site as a band of film that corresponds to successive picture frames. His work, however, is an extension of a previous vocabulary into the realm of architecturally defined open space. He uses the same idea of 'framing' the site, making it essentially an experiential interpretation. Here we find the super-imposition of different disciplines, blending together to make inter-active spaces. There emerges a different angle and expression for the deformation and re-interpretation of nature.

Here the 'process' is more important than the act itself.

De-familiarization through this set of references defined as sequences, calls attention to itself as a device, as formal manipulation. Tschumi states that in ritual 'the route is more important than any one place upon it'. When the route refers to plot, to the unfolding of the artistic devices, everything is sub-ordinate to the formal manner of presentation. Spaces and events are merely devices for ritual display.

This sequence can also be based on a precise, rational set of transformational rules and discrete architectural elements. The sequential transformation then becomes its own theoretical object, insofar as the process becomes the result, while the sum of transformations count at least as much as the outcome of the final transformation.

Transformational sequences tend to rely on the use of 'devices' or rules of transformation, such as compression, rotation, insertion and transference. They can also display particular sets of variations, multiplications, fusions, repetitions, inversions, substitutions, metamorphoses, anamorphoses and dissolutions. These devices can be applied to the transformation of spaces as well as programs. As Tschumi himself says:

> "Yet architecture is inhabited: sequences of events, use, activities, incidents, are always super-imposed on those fixed spatial sequences. These are the programmatic sequences that suggest secret maps and impossible fictions, rambling collections of events, all strung along a collection of spaces, frame after frame, room after room, episode after episode".

These sequences of events and spaces often contradict and clash with each other. One constantly observes a strategy of conflict, in which each sequence transgresses the other's internal logic.

Not all architecture is linear, nor is it all made of spatial additions of detachable parts and clearly-defined entities. Circular buildings, grid cities, as well as accumulations of fragmentary perspectives and cities without beginning or end produce scrambled structures where meaning is derived from the order of experience rather than the order of composition. Tshcumi aptly describes this situation:

> "Like snapshots at key moments in the making of architecture whether in the procedure of real space or like a series of frozen frames."

He describes the form of composition as

collage sequences = collisions

montage sequences = progressions

All sequences are therefore cumulative. Their 'frames' derive significance from juxtaposition. They establish memory of the preceding frame, of the course of events. To experience and to follow an architectural sequence is to reflect upon events in order to place them into successive wholes. Paramaters that remain constant and passive for the duration of the sequence can be added and transferred, as when a given spatial configuration finds a displacement. Tschumi defines the frame as

> "Frame: the moments of the sequence. Examining architecture 'frame by frame', as through a film-editing machine."

Opening the Posibilities

An Open Space: Possible Scenarios

Foremost is the 'game' between variables and constraints.

a. For instance in the promenade cinematique the process finds itself

between the 'pedestrian constituity' and the variables of the garden 'frame' in the constructed field.

b. Between the architectural constant of the folies and the multiple scenarios that they suggest.

c. Between the 'constancy' of the folies and the variability of the constructed equipment.

Combinations + Super-Impositions. To combine in a dynamic way is not to compose. To super-impose is not to assemble. The combination here is meant to make use of mechanical operations that can give birth to an infinity of possible solutions. To combine is to be always pulled towards a new solution, following the one previously obtained The ultimate realization = static state. This is the instant when a thing becomes petrified. This instant will be a 'stop'. *To superimpose is to have expectations from the confrontation* of two or many systems - programmatic exigencies or forms to create events that will not result from the 'controllable rationality' of each of these systems.

Schizophrenia: A Contemporary Mood

Tschumi's work is essentially enriched by analyses and metaphors that are external to architecture. Constant references are made to scenarios, sequences, frames, lands, strips of film, sound and the cinema. It is a reflection of a schizophrenic dimension, one that is split into fragments.

These jumps from one discipline to another are symptomatic of a contemporary dimension. It seems strangely sympathetic, although far removed, from what Walter Gropius said in his inaugaral address to the Bauhaus in 1919.

> "We must imagine, and create the new architectural concept co-operatively. Painters, sculptors, break down the barriers around architecture and become builders towards arts ultimate goal, the creative idea of the 'cathedral of the future', which will once more encompass everything in one form - architecture, sculpture and painting."

Being, not appearance, spirit not ritual, became the main drives of this impulse.

As in medieval times, the disposition of an object or a man in space took on a new, informative role. By the same token, as in the traditional Russian icon, the slogan and the image of an object became almost mutually interchangeable.

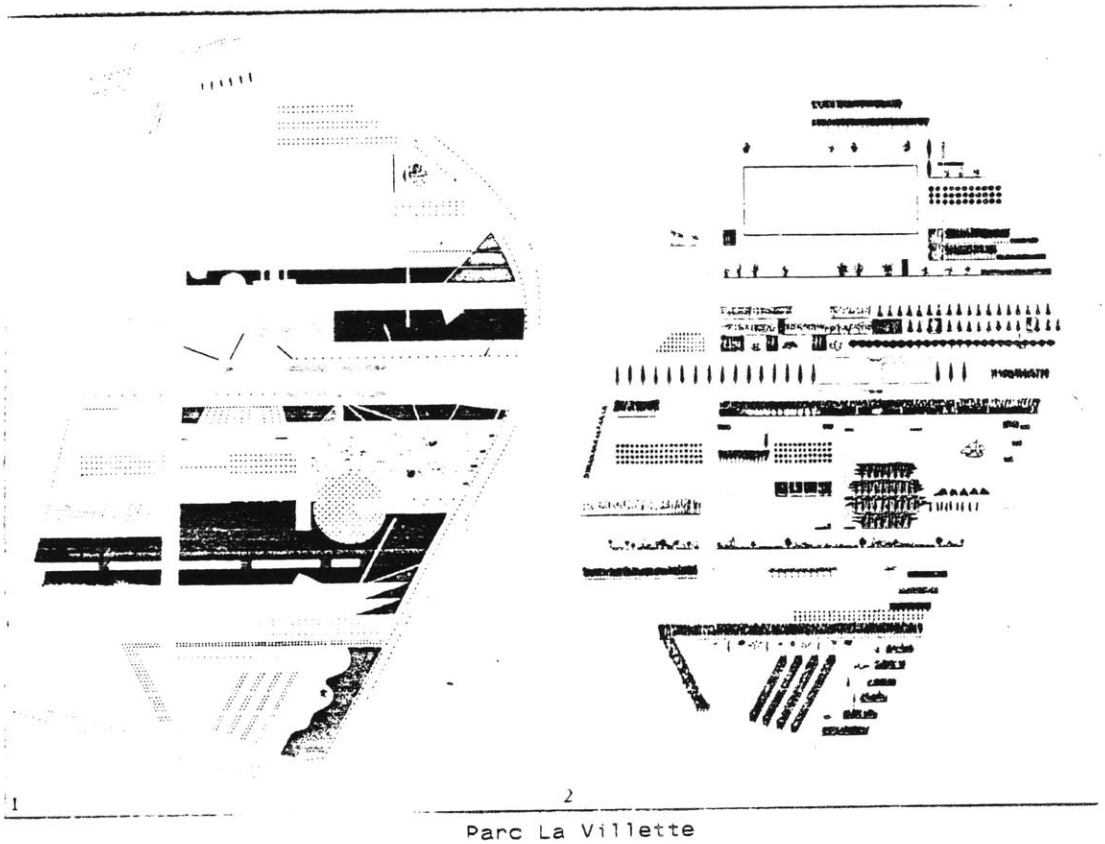
The word fusing into a sign, while the object by virture of its simplificaition began to function as inscription.

The traditional fields of art, architecture and engineering found themsleves innundated by *the world of objects in action.* Architecture no longer consisted of hermetic finished compositions but rather of *aggregations of elements in the process of being enacted.*

Their component parts were not only signs of actual productive relationships, but also the context for more explicit iconography and information.

It was at this point that art, life, theatre, circus, cinema and architecture began to be consciously merged into one continuum, in which there was no longer any self-evident point of interruption. At the same time, all the categories of the old world ceased to have any significance. Tschumi's work takes off on the same concepts and ideas, although it is influenced by inherently different external situations.

Fig. 101



Parc La Villette

Rem Koolhaas & OMA: The three kinds of nature, and the different species of trees proposed
Computer generated designs

Rushing headlong into the crisis of the future, it becomes clear that what transpired in Russia in 1918 determined both the predicament and cultural threshold of all that we have subsequently experienced as architects dealing with the twentieth century.

His work draws attention to an important step forward into the 21st century. It is for this reason that it is significant to consider it an important break or rupture in the history and development of architectural thought. It is not only breaking away from traditional representation, as it was previously understood, but moving into a world where the site becomes the park and is defined as a grid with a frame defining magnetic fields.

And A Different Dimension....

Parc La Villette: OMA. Koolhaas: Conceiving Territories as Information Grids

Rem Koolhaas' proposal for Parc La Villette once again suggests a program through establishing an overall, linear 'grid' [Fig. 101]. For his office [OMA: Office of Metropolitan Architecture], the 'program' can be differentiated and independent at the same time. The only element of stability is the natural elements. It can be further described as:

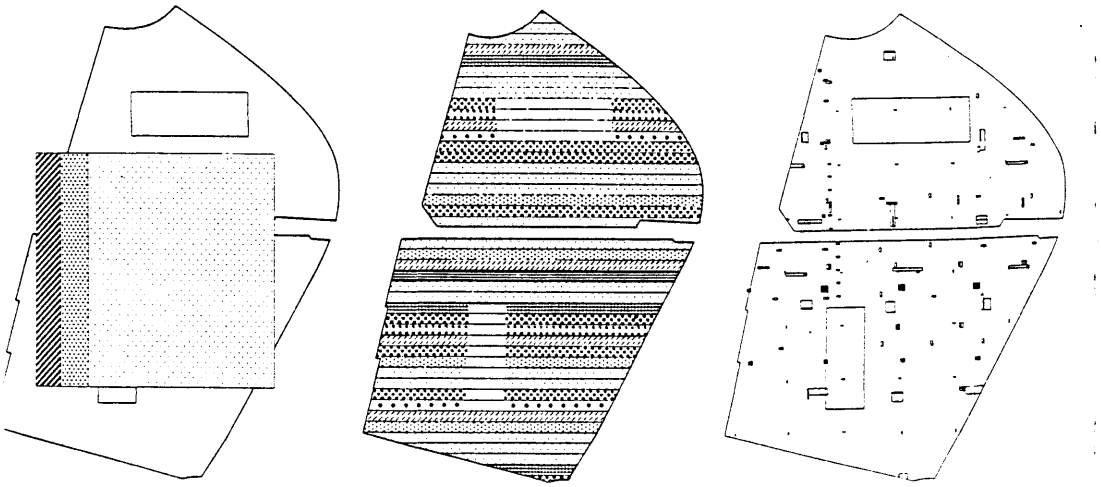
Concept: Using territories as information grids

Creating: De-materialization, larger freedom for illusion

The Grid: Computerized Fields are born.

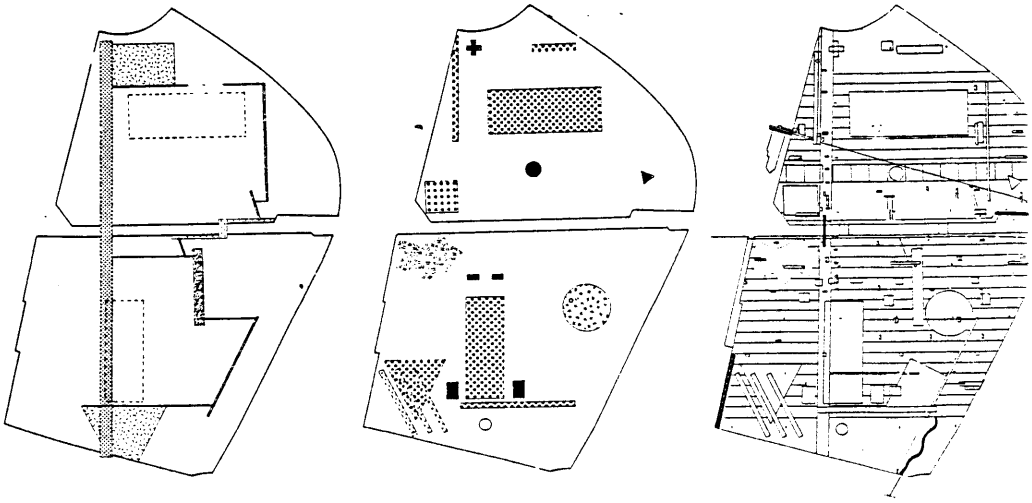
A tool that provides equilibrium between order and disorder and so most areas on the site become descriptive *planes of artificial mirages. There is once again that link in trend to surrealism, but an even stronger sense of a world dominated by machines and computer information.*

Fig. 102



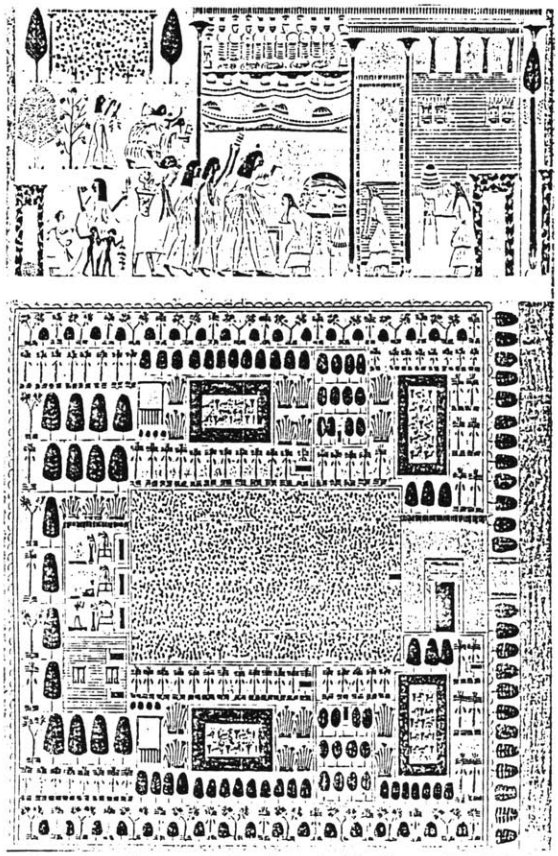
Computer Aided Design
Bands: Dividing lines of the Programs

Atomisation & Re-organisation
according to the grid

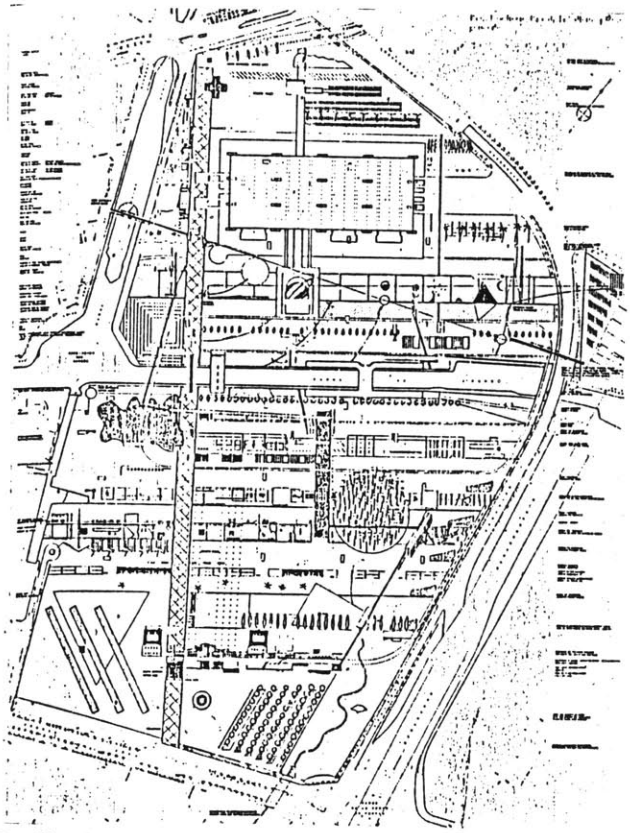


Circulation: Principle direction is north-south
The compostion of large scale elements

Fig. 103



Garden Scene, Tomb of Thebe, Egypt



Rem Koolhaas: Overall Plan for Parc La Villette

An underlying strip pattern is generated, each strip being as intense as the activities it encompasses. The underlying order of the series of linear strip pattern absorbs the energy of the buildings. The diagrams of the main accesses along with the strip division become the underlying orders on which large scale activities become the basis for minor amenities. A similar diagram is developed for the major groups of vegetation and finally for the different species of trees [Fig. 102].

The overall product is the clashing overlay of all the previous diagrams onto the site. There is a sense of visual exploration and fragmentation through super-imposition and clashing of orders; the result seeks to promote the deterministic spirit of orientation and direction. New York, at the level of the city, is composed of the same layers.

Koolhaas and the OMA lay great importance on the development of an intellectual course to translate intuition into a concept.

Accepting the Artificial

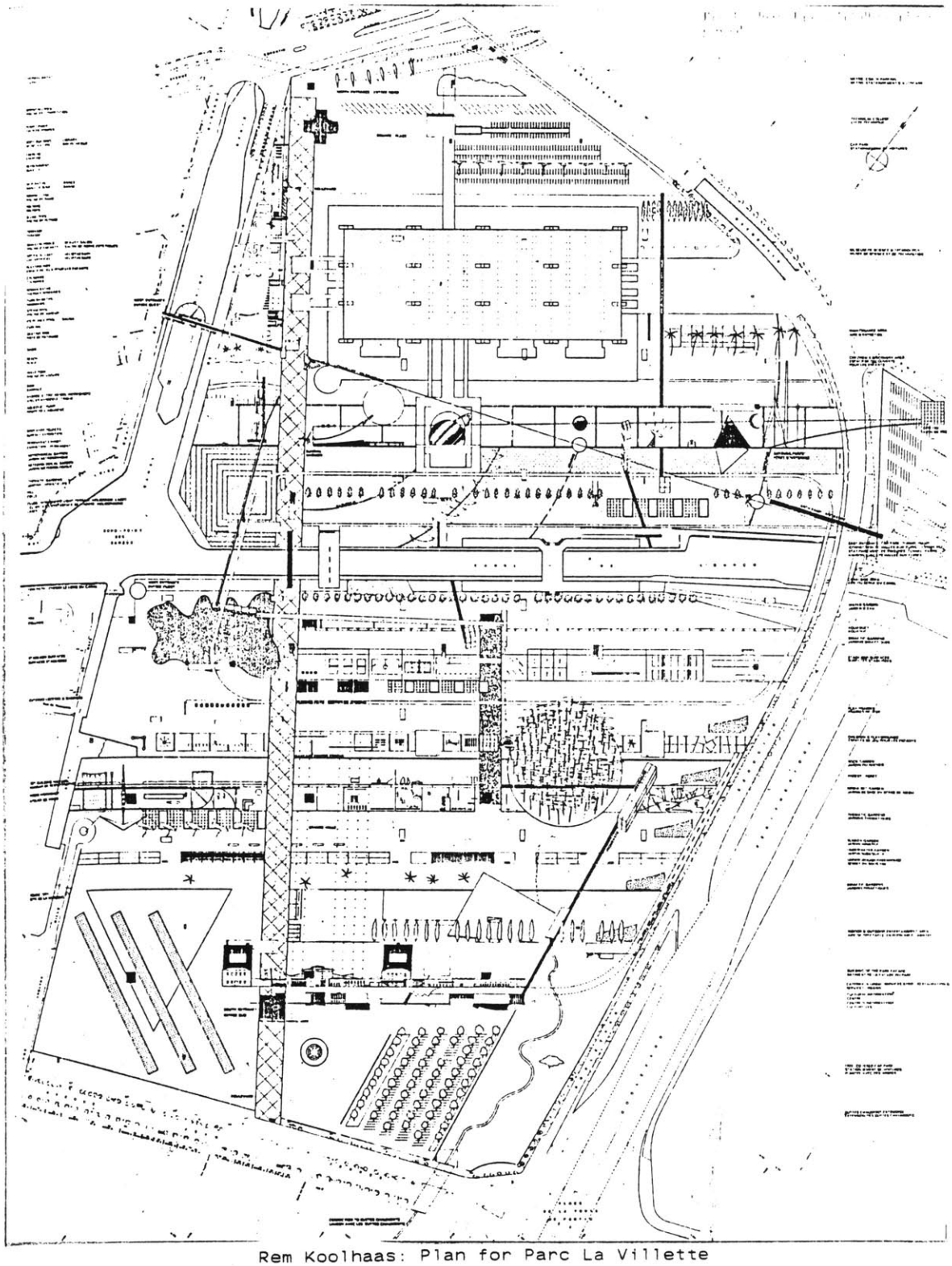
A Changed Approach to Nature

The artificial is present with stunning power in the work of the OMA. Theirs is an attempt to fill up the nebulous vaccuum of undefined borders to enable an escape from daily mediocrity. Super-imposition of lines and points is primarily theorised at Parc La Villette; like confetti, buildings fall in unexpected places, leading us into a new dimension of artificiality. It is the interface of those two themes that is important to consider.

The buildings are juxtaposed to nature for the blind-contrast, as Koolhaas says:

"Curtains of trees haunt my dreams" [Fig. 103].

Fig. 104



Rem Koolhaas: Plan for Parc La Villette

The whole process is an allegory to organic processes. Koolhaas believes that all that is pertinent to nature dissapears: " one is born, one dies, one dissapears, only ideas, art and the artificial have some promise of permanancy". He feels that the ultimate hope for humanity can be achieved through 'artificiality'; in this way man could become immortal. The artificial therefore resists the condemnation of death. It supports the illusion for survival and melts into the continuity of an infinite existence. He further explains their concept by saying:

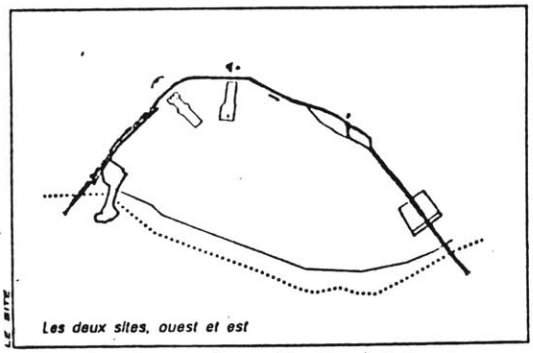
> "The question is not to like or dislike nature. It would be absurd to negate the pleasure it gives us. It is only a joke. The history of humanity logically does not go towards the substitution of nature through artificiality, which would gain a definite victory over death".

Exploring the Metropolitan Condition

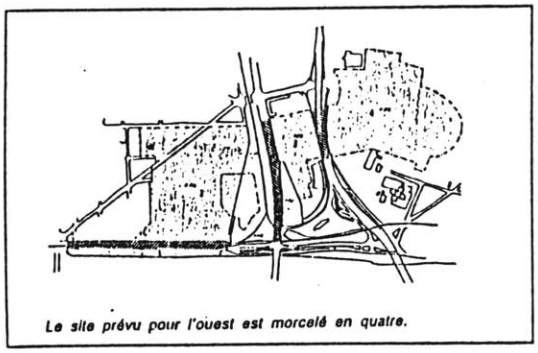
Architecture here is defined as 'impermanent', where even the most significant move cannot be compatible with the instability of the metropolis. Thus open space, when injected or re-constructed within the metropolis, will by default become a part of that instability. The metropolis will always be the winner in the end. The structure of the park is differentiated from the appearance, thus seperating shape and use. The architectural illusion created follows the necessity of the metropolis. And so for them the city becomes an important element in defining an open space. The synthesis of the two suggests a plausible relation between architectural modernity and the metropolis.

There seems to be a radical supression of three dimensional effects, replaced by a *"Programmatic Field"* of pure shape liberated of any restriction. In their design there is a continous analogy to the city and in this lies the basic difference between their project and Tschumi's. While Tschumi's design looks at the process as 'sequences', it is *self-explanatory and self-referential,*

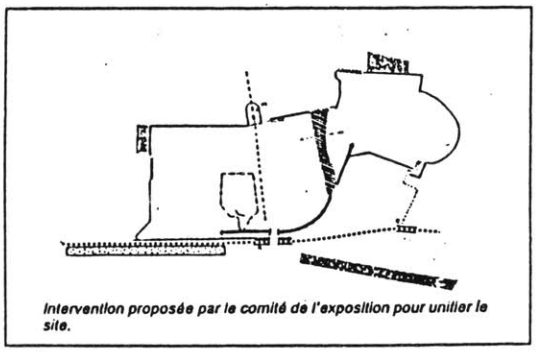
Fig. 105 UNIVERSAL EXPOSITION, Rem Koolhaas & OMA



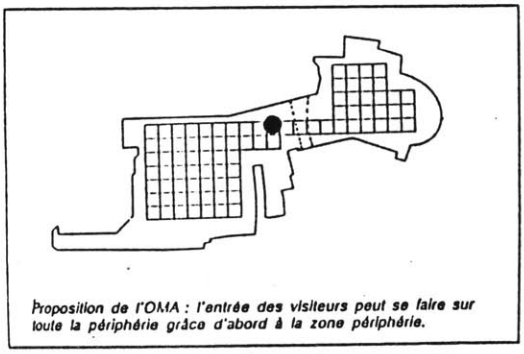
1. the two sites West and East



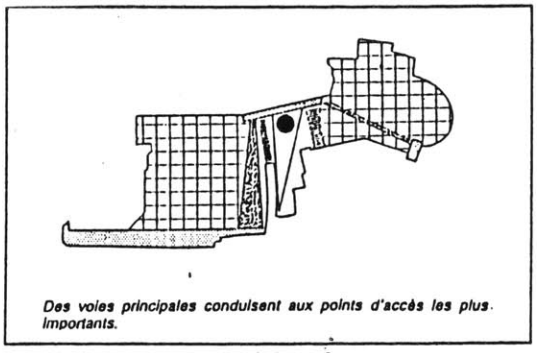
2. The western site is decomposed in four



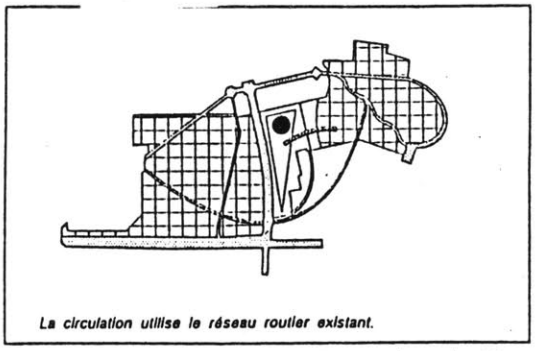
3. Intervention proposed by the Committee for the Exhibition, to unify the site



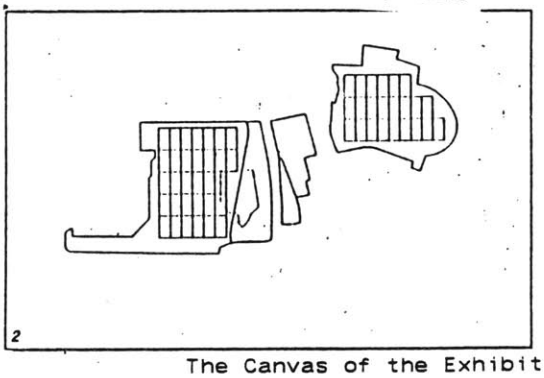
4. OMA proposal: entrances for visitors

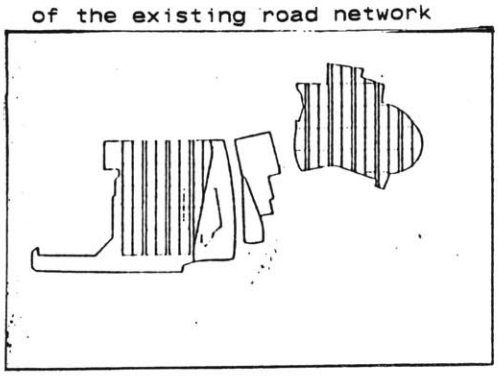


5. The main corridor leads to the most important access points



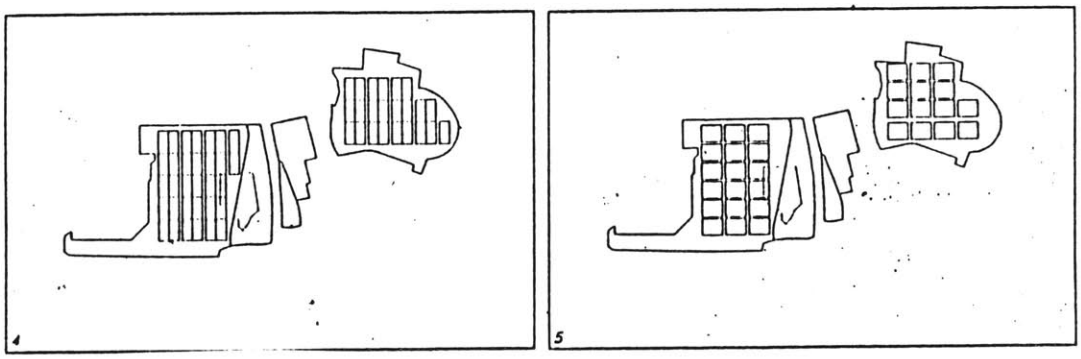
6. The circulation takes advantage of the existing road network

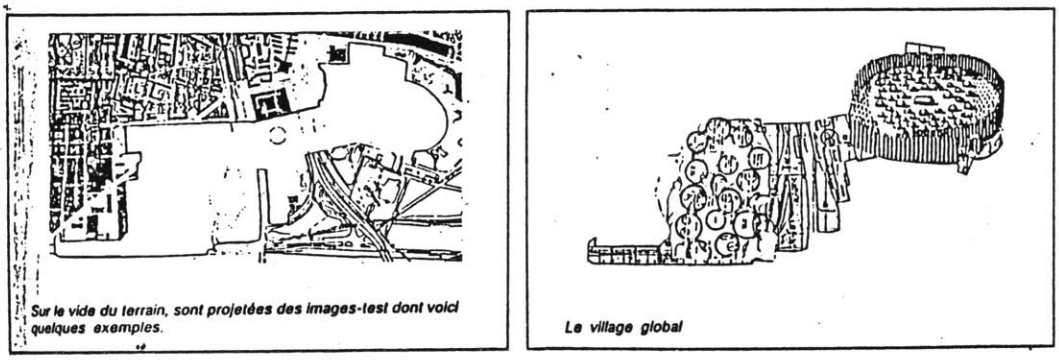




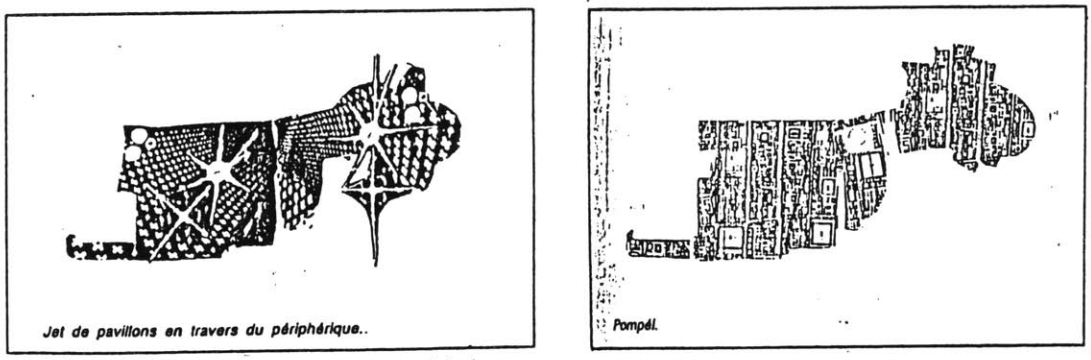
The Canvas of the Exhibition
The pavillions are devices rather than buildings

Fig. 106



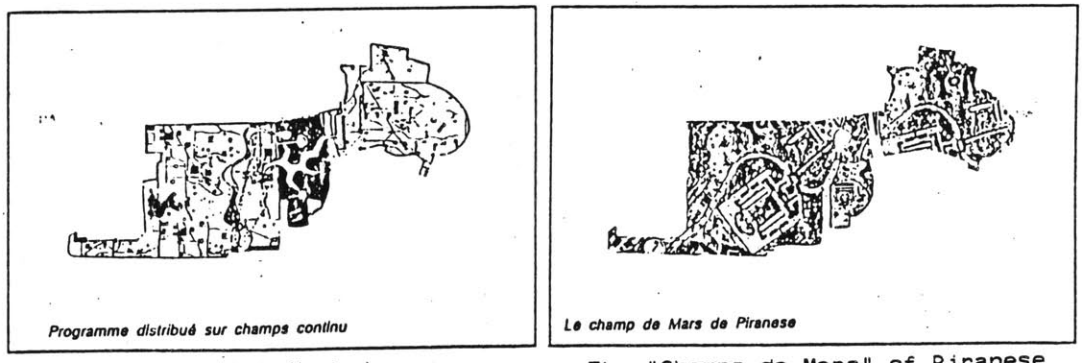


The Global Village



Jet of Pavillions across the highway

Pompei



Program distributed on a Continous Field

The "Champs de Mars" of Piranese

Projection of proposed images

whereas the OMA proposal creates a grid in the shape of linear bands, analogous in many ways to strips of film in Tschumi's frames. These bands are compared to the different levels of a skyscraper: in other words, the ordering device of the park is a subverted, horizontal skyscraper. However, *each step has a differentiated and independent* program, modified by the proximity of its neighbours, and constantly formulates itself with reference to the metropolis.

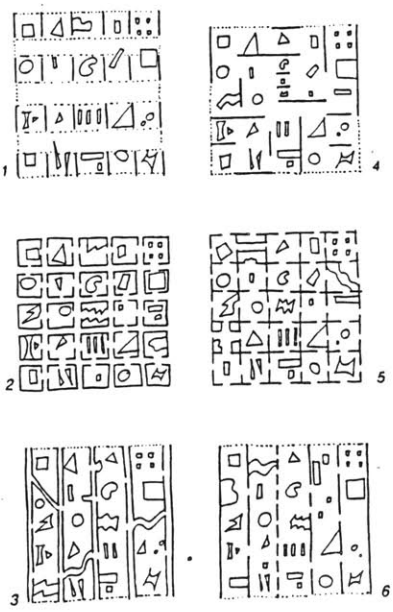
La Villette, in their case, suggests pure exploitation of the metropolitan condition ie: 'Density without Architecture', cultivating an invisible congestion [Fig. 104].

Universal Exposition: Rem Koolhaas & OMA

I will refer to another project by OMA: their proposal for 'The Universal Exposition, 1989' [Figs. 105-106]. I mention this to prove a continued link of a trend: here the expression is dominated by 'content', and the dissemination of information.

The project is divided into two zones, west and east. It consists of a series of areas divided into parts through the grid. The strategy consists of 'infiltration' rather than intervention. The purpose was to allow access at many points along the periphery of the site, futuristic transportation called 'Aramis' would take people to their points of destination. *The 'pavillions' tend to become devices/tools rather than buildings. They are conceived as territories where the use of 'pure information' will replace the 'constructed mass'.* It is thus an acceptance of de-familiarization giving larger freedom to the *deployment of illusion.* Thus open and flexible situations are achieved. Walking through these territories would be like a high speed travel experiment.

Fig. 107



Quatre exemples d'éléments de composition
1. Eléments à grande échelle (parc, forêt, places, canaux, bassins...)
2. Lignes de communication (transports techniques, routes thématiques...)
3. Bandes thématiques (eau, lumière, holographie, parc, climat, son, lumière, odeurs, technologie, géographie...) 4. Relations internationales (expositions de projets multilatéraux, échanges culturels...)

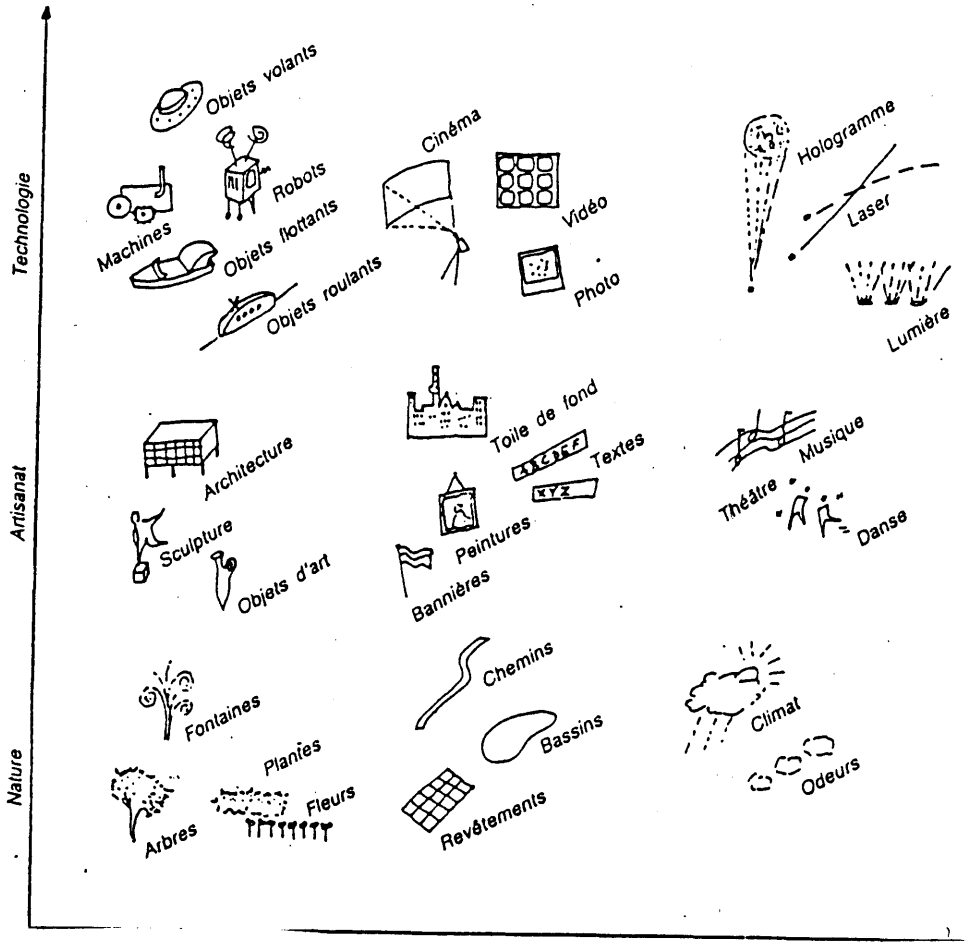
Models of territory organisation

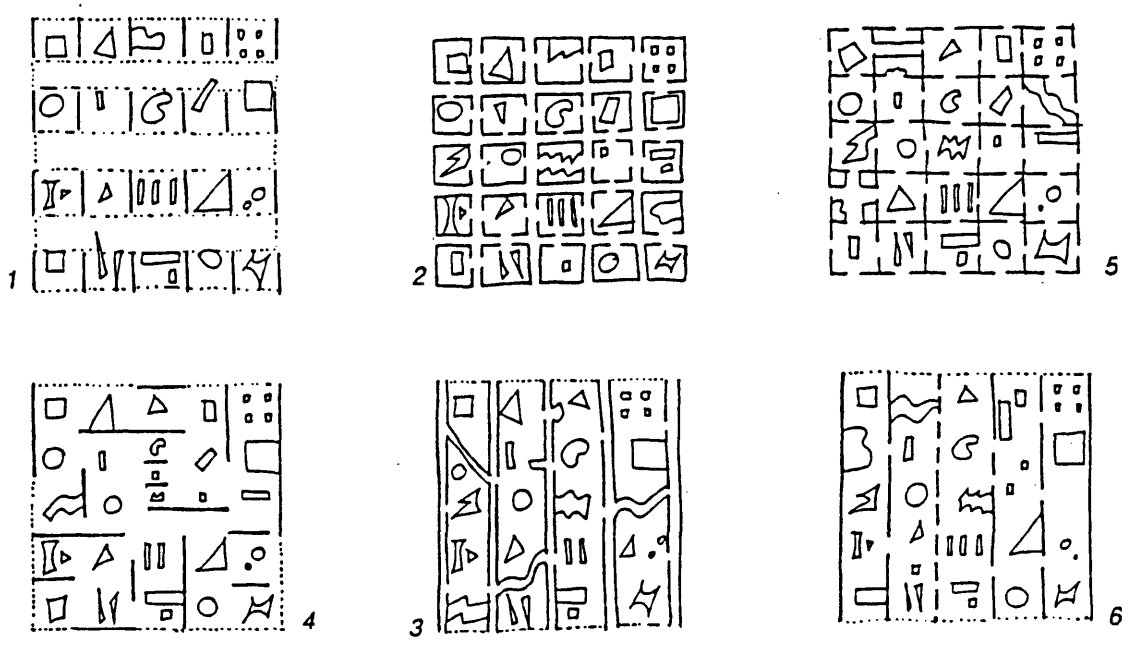
1. Roof Megastructure
2. Information Landscape
3. Individual Pavillions
4. National Enclaves

Four examples of compositional elements

1. Large scale elements: forests, canals ponds
2. Communication lines: thematic roads, technical transportation
3. Thematic bands: water, light, holography, park, lasers
4. International relations: multilateral projects, cultural exchanges

Fig. 108





Six variations on the 'Communication System' with autonomous circulation

1. Half open
2. Street frame
3. Corridors with integrated circulation
4. Irregular partitions
5. Definite enclaves
6. Bands

Fig. 109

Exemples de moyens de transport	Caractéristiques de mouvement	Passagers: Isolés / Groupés / Masse	Par heure	Distance recommandée par rapport au site	Possibilité d'usage programmatique
1. Marcher avec un guide électronique : Walkman Montre-télévision Ordinateurs de poche pré-programmes	« Anarchiste »	Isolés Groupés Masse			Les « casques » peuvent être programmés avec un itinéraire spécifique
2. Tapis roulant Escalator Convoyeur	Circuit fixe Connection entre deux points ou à intervalles	Masse	4 000 8 000	Courte Moyenne	Traversée d'un programme
3. Téléphérique	Circuit fixe, connection entre arrêts Application facile sur terrain difficile	Isolés Groupés Masse	4 000	Moyenne Longue	Éléments thématiques suspendus
4. Canapé roulant	Circuit fixe, sortie et entrée multiples	Masse	10 000	Moyenne Longue	Chemin de confrontation immédiate avec le programme
5. Train Monorail Funiculaire	Circuit fixe, connection entre arrêts. Deux directions	Masse		Longue	Voyage d'aventure le long du tracé
6. Ponts tournants Couloirs amovibles d'aéroport Grues	Connection mobile ou fortuite de deux points	Masse		Courte Moyenne	Connections fortuites Croisements d'éléments thématiques
7. Montagnes russes	Circuit fixe et fermé Sortie et entrée par un seul arrêt	Groupés			La forme du tracé peut décrire des symboles. Le tracé peut faire une coupe à travers plusieurs thèmes.
8. Tanks amphibies Aéroglisseurs Sous-marins russes Ballons dirigeables	Mouvement plus ou moins anarchiste	Groupés		Courte Moyenne	Le transport lui-même est objet d'expérience
9. Pavillons roulants Iles flottantes Pontons	Mouvement programmé sur surface déterminée	Groupés		Moyenne	Le transport engendre son propre programme pour être ensuite mis en scène dans une chorégraphie thématique
10. Voitures Autobus Bateaux Caractéristiques de mouvement	Mouvement libre sur surface déterminée	Groupés			Itinéraire thématique programmable

Diagramme 4 : les potentialités des systèmes de transport pour donner à voir les thèmes.

Courte Moyenne — Le transport lui-même est objet d'expérience

Moyenne — Le transport engendre son propre programme pour être ensuite mis en scène dans une chorégraphie thématique

Itinéraire thématique programmable

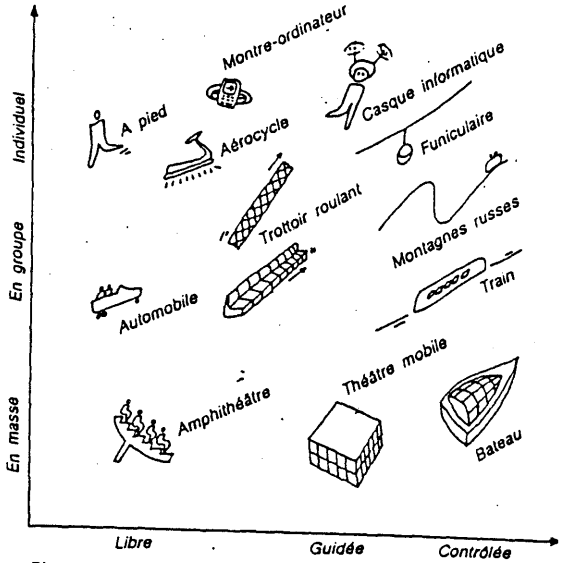
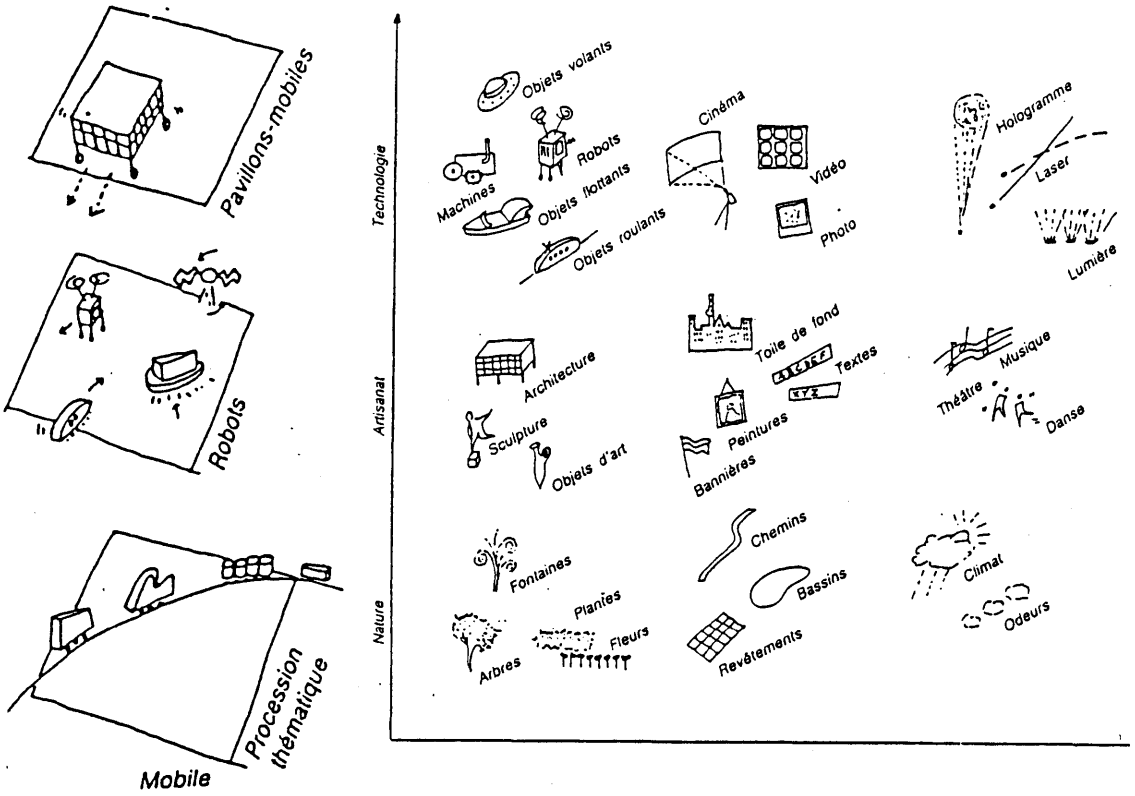
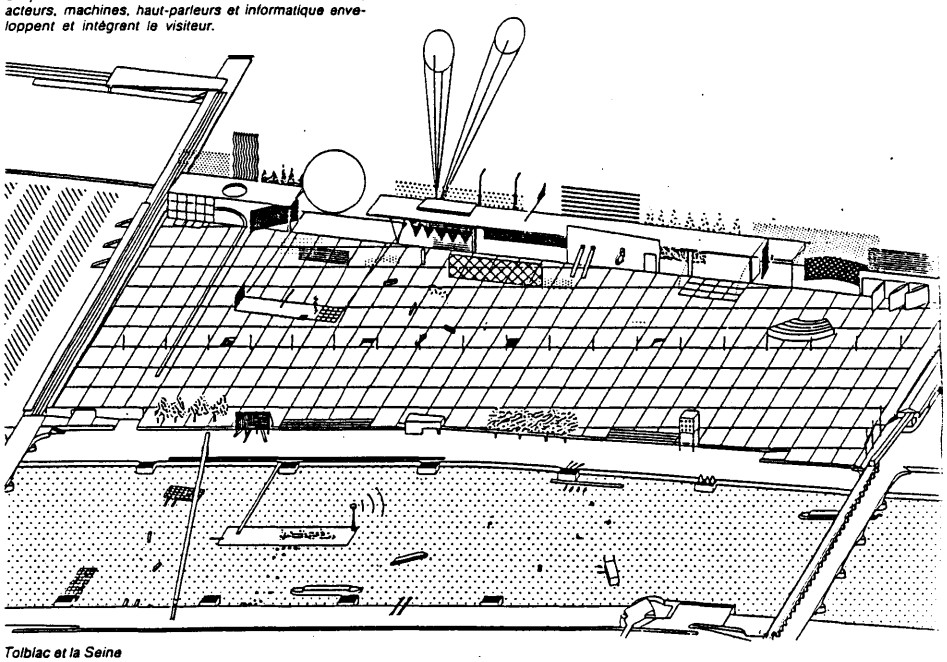


Diagramme 2 : le système de transports.

Fig. 110



La partie Tolbiac du site est une scène où robots, acteurs, machines, haut-parleurs et informatique enveloppent et intégrant le visiteur.



Tolbiac et la Seine

The discipline imposed by the frame on the horizontal plane creates an anarchy never seen before in a three dimensional space. Theoretically the only constraint is to occupy the space and make it accessible

The site is then transformed into a 'Computerized Field/Grid', divided by invisible frontiers, defined by a regular frame in which each visitor will be able to establish his own trajectory. The two dimensional discipline created by the grid creates an unexpected anarchy in the three dimensional spaces that occur thereafter. The grid once again defines the difference between order and disorder. The strategy superimposes three independent projects:

a. the pavillion territories

b. the inculcation of the park

c. administrative complex

Three solutions are looked at:

1. The area is divided into identical lots, each one integrating a fraction of circulation and the park areas.
2. The circulation and the parks are isolated and placed in neutral parallel bands.
3. The circulation and the various parks create a frame including equal blocks that may be sub-divided.

A group of simulations may act as models. Injected here is the idea of actually using the machine ie; the computer to 'simulate' life like situations, to create an overall scheme [Figs. 107-108]. A concept that uses the machine as a tool to express architecture which at the same time begins to change our notion of space. There is a central boulevard in the East Zone called 'Boulevard de L'Holographie and Lasers' [Figs. 109-110]. On either side are these bands that display electronic products, lasers, cinematographic displays and audio-visual booths.

PART III
RE - THINKING THE CITY

RE-THINKING THE CITY

Three Possible Scenarios

This section exposes alternate expressions in city form. It explores the idea of "returning to the future", a recurring theme throughout the thesis. The discussion is organised around the three following examples, all instances of the city in a state of "Technomorphosis":

Kawasaki City: *A backward-looking utopia*

The classic cliche: The city of the future

New York : *The City as an 'object of revision'*

The abstract grid of culture vs

The defined grid of the city.

A reality defined through:

Layering

Juxtaposition

Super-imposition

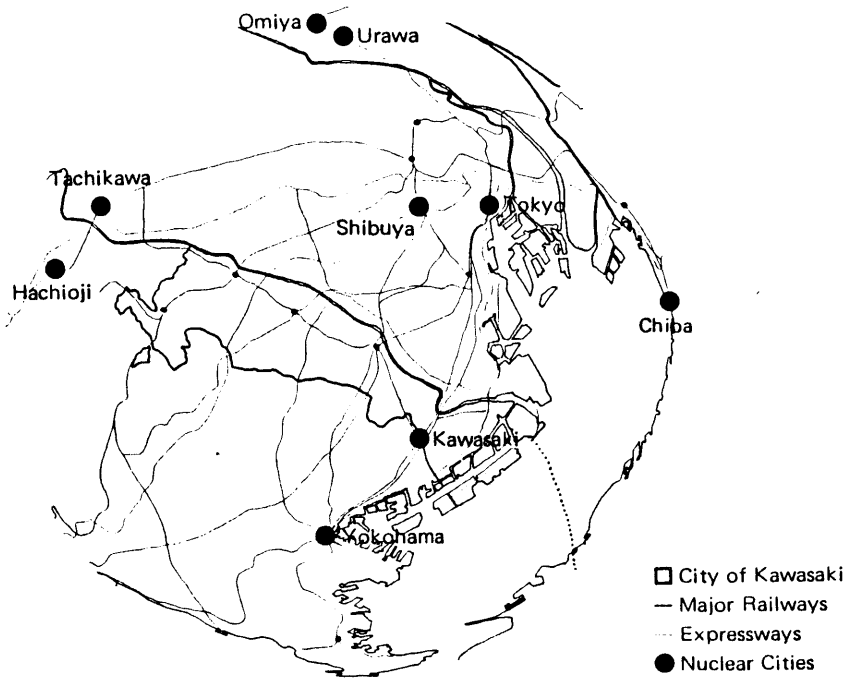
Retro-fitting

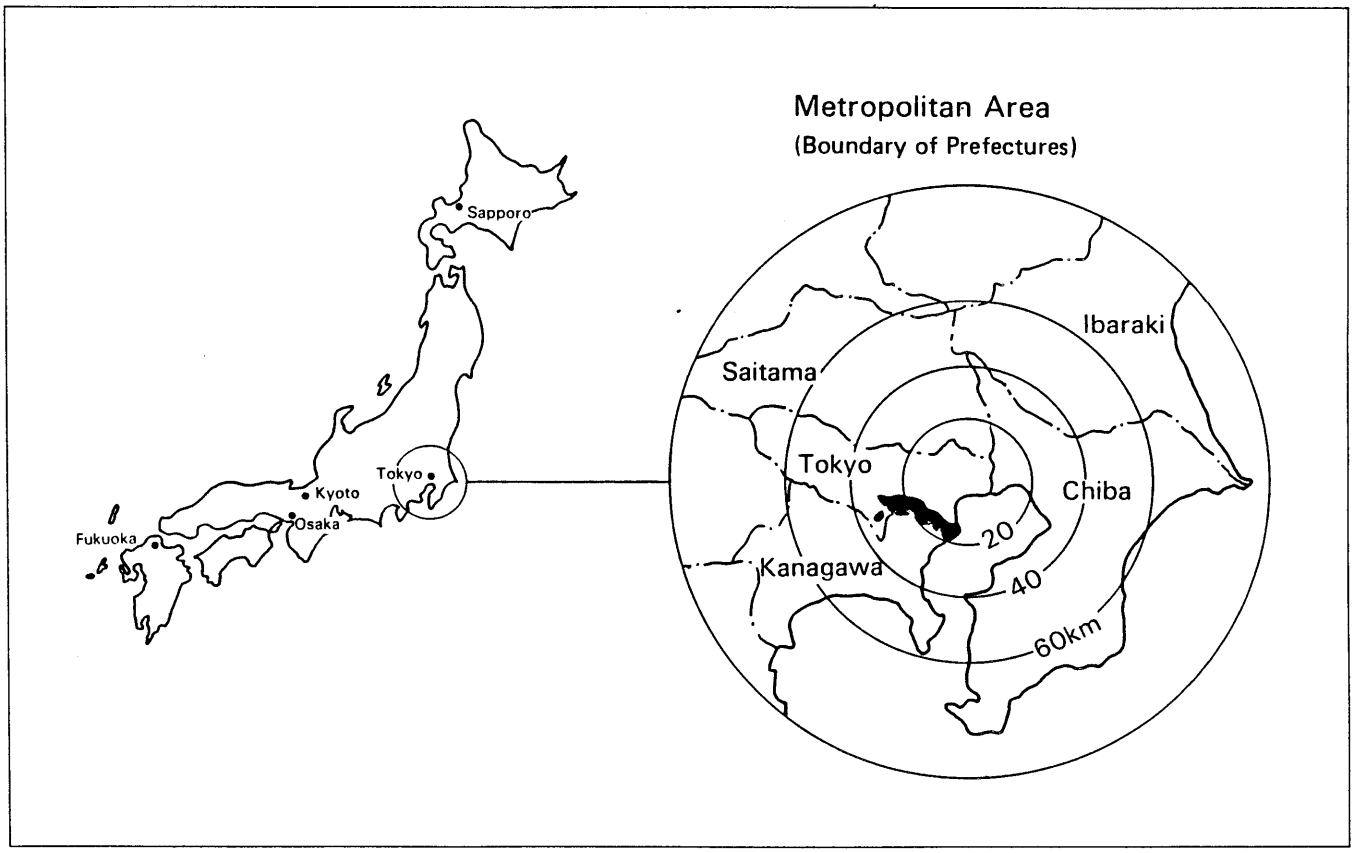
Telluride: *Generic Centerlessness*

To a new space-time synthesis

This part of the investigation brings to the surface distinct trends in emerging conceptions of city form. It is essentially a walk through ideas, which are isolated and remain untested at this point in time. It must be read as a map of speculations about the changing nature of the architectural vocabulary.

Fig. 111


Omiya
Urawa
Tachikawa
Shibuya
Tokyo
Hachioji
Chiba
Kawasaki
Yokohama
City of Kawasaki
Major Railways
Expressways
Nuclear Cities


Metropolitan Area
(Boundary of Prefectures)
Sapporo
Tokyo
Kyoto
Osaka
Fukuoka
Ibaraki
Saitama
Tokyo
Chiba
Kanagawa
20
40
60km

KAWASAKI CITY

The Classic Cliche: City of the Future

There is an apprehension about the human environment over the ease with which technological procedures could become an unquestioned method and establish both the theoretical limits and practical controls of human activity.

Kawasaki City, is situated in the northeastern corner of Kangawa perfecture in Japan. It borders on the nations capital, Tokyo [Fig. 111]. Stretching some 33 km from southeast to northwest. The present city area was formed by merging eleven towns and villages. After World War II, the city lost no time in launching a vast re-construction campaign aiming to become a major productive cultural center. It is described by the planning association of Tokyo, as the creation of an 'international, scientific and cultural city'. This is an approach for urban revitalization based on high-information and communication systems.

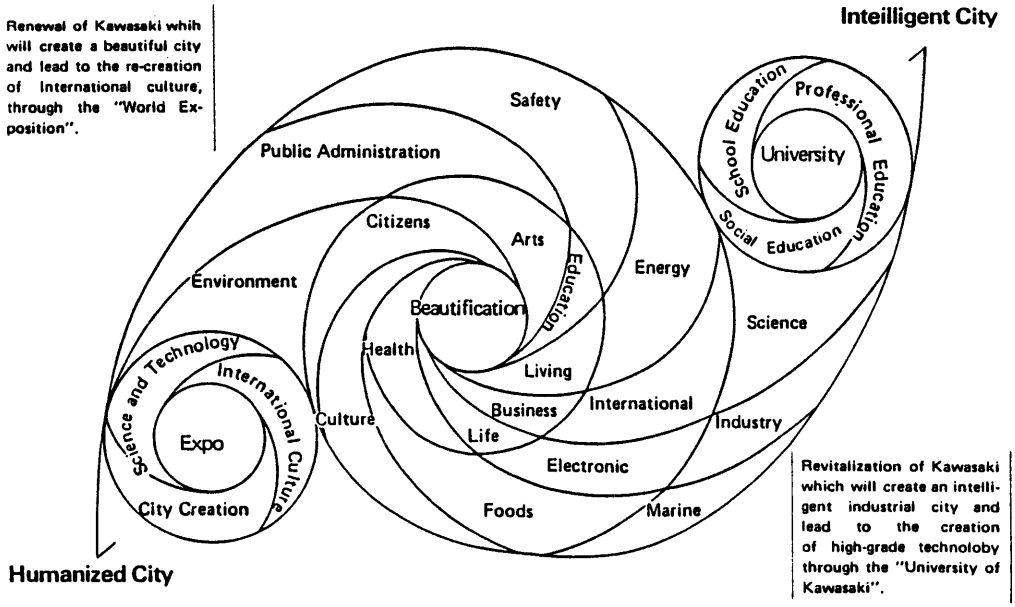
The city will be realized in terms of a concept of linkage, that begins to re-interpret the physical reality of the built environment. With large projects underway, the plan should become a reality in 1996. However, taking a closer look, it is curious to note that it seems to revert back to classic images of the future, from the past. The difference being that Kawasaki, becomes an intangible interpretation. The way it is divided into zones seems analogous to traditional zoning practices where each function is given a discrete location in the overall plan.

The concept of a multi-nucleur metropolitan area is being studied. This intends to decentralize metropolitan functions, currently concentrated in Tokyo, for the independant development of metropolitan nucleur cities. Kawasaki has access to sea, air and land

Fig. 112

New City Identity of Kawasaki=Campus City

Software approach to city making



transportation. It intends to play an important role in re-structuring the Tokyo metropolitan area by strengthening its position as an *international information center.*

The preparation for information oriented urban spaces is making progress to respond to the transition from material-based to knowledge intensive industries. The plan relating to the preparation of a *'Micom City'* [microcomputer city], the Kawasaki Station area, and civil port island has already been put into effect. With the addition of a 'Science Park', Kawasaki city shall be ready for a so-called urban renaissance of the 21st century.

Software Approach to City-Making

Kawasaki city will have two distinct faces. It will be divided into seperate industrial and residential cities. The two shall be explicitly different in nature, but will be linked not only to each other, but also to various comprehensive urban functions.

According to the plan by the Planning Association of Japan:

> *'The 2001 Kawasaki Plan, is destined to encourage software and hardware creation, and elevate the idea by the software aspects'*

Kawasaki, has entered the era of informationization, internationalization, and de-industrialization, thereby intensifying the need for innovation in the structure and concept of city making. The sophistication of the industrial sector and the diversification of living cultures has made it essential to construct new urban facilities.

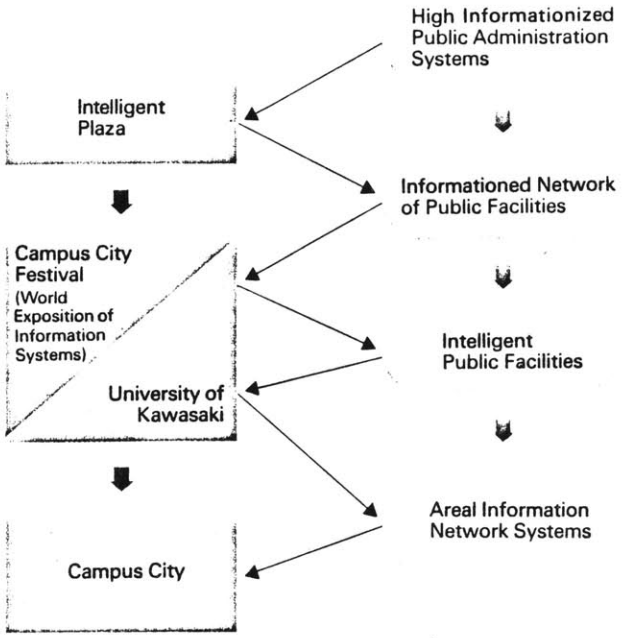
Establishing an Identity for the City

A Backward-looking Utopia

It seems that the most important part of the infrastructure of cities will be sophisticated information and communication structures, which will serve as the central nerve of the community. Taking this as a departure point, the establishment of a city identity provides reasons to establish new goals within this framework. This new goal could be, best described as going towards the creation of an *intelligent city* [*Fig.*

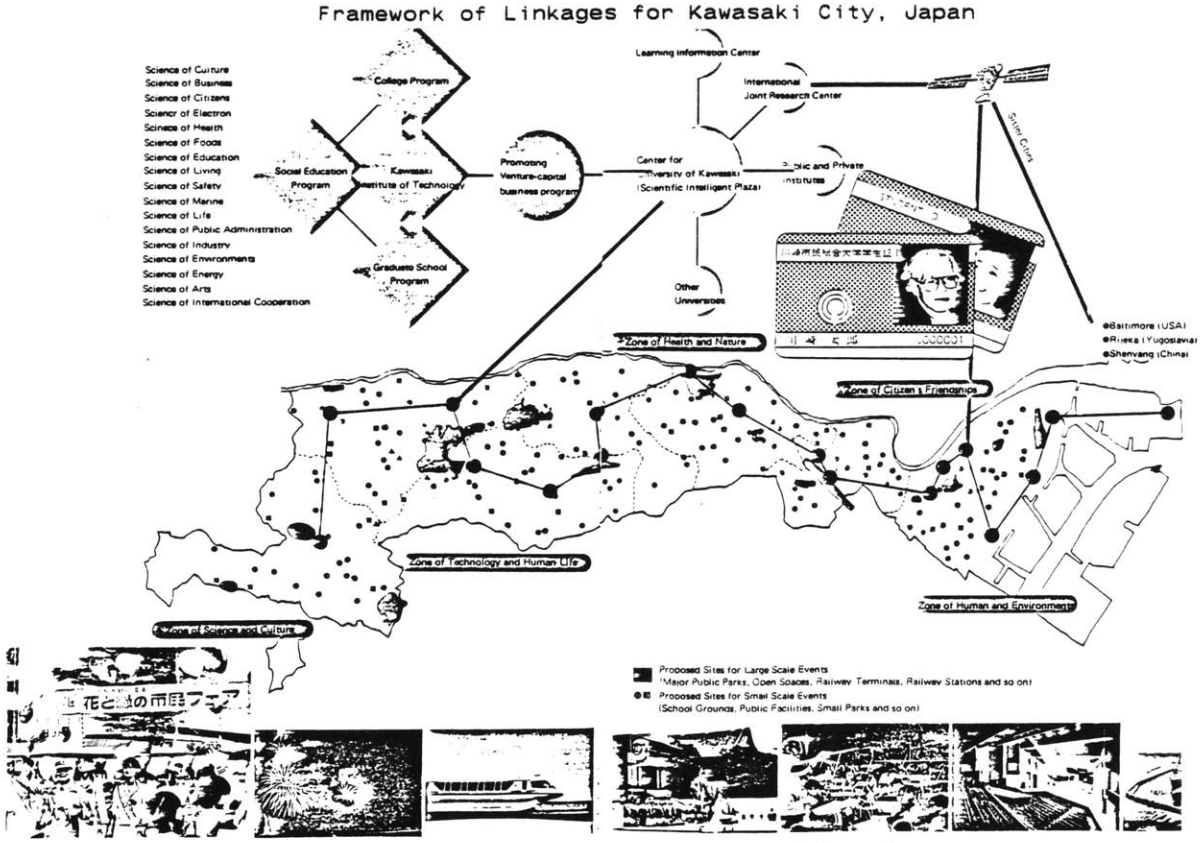
Fig. 113

Scenario for Campus City



Software approach to citymaking

Framework of Linkages for Kawasaki City, Japan



Multi Communication Network Connecting Link of Creation

Concept of the university and the exposition at the core of the campus city

Allocating space for various zones

112]. In the case of Kawasaki, this intelligent city, is emerging in the form of a campus city. The establishment of a university, using the benefits of an information society through a composite universality with decentralized campuses connected by an information network, is a microcosmic view of what entire cities can become in the future [Fig. 113]. To achieve much of the above, one would require specialization in the *'science of information'* closely connected with both international culture and computer technology. Public and private buildings are to be used as 'halls of information', these will be scattered throughout the city in the form of *'Intelligent Plazas'*. The city is programmed to hold an international exposition in the form of a campus festival, called *'The World Exposition of Information Systems'*. The whole city will become the site for this exposition.

Decentralized 'intelligent' plazas will be considered as exhibition pavillions. Peripheral public facilities and open spaces shall be used as temporary event plazas. At almost all times some event will be going on within the city, thus making it alive with energy.

It seems that the idea of 'intelligent plazas', as an inter-active system seems to be a transformed version of the *'urban plaza', which in a North American context, has been trying to establish some form of relief for the 'culture of congestion', with very little success.* New York, a city that thrives with energy seemed to have little need for these spaces with no meaning. Today, in many contemporary cities, such plazas *become wind swept and remain isolated.* The difference in what Kawasaki is trying to do with the old idea of creating a plaza is the fact that it is *'injecting it with content and making it a user-friendly space'*. A space that shall attract activity. The purpose of quoting the above, is to bring to the surface the subtle metamorposis which has taken place. The word 'plaza', is the same but there seems to

be a radical change in terms of the way it is presented, thought of, and finally used. In its new form 'the plaza', will become a 'network of intellectual resources', centered within an intelligent city.

Living conditions and general dissemination of information and production activities shall be greatly improved, as a result of highly efficient retrieval and expansion systems. These intelligent plazas shall be connected with all public and private facilities in Kawasaki. This inter-active network shall be divided into four parts;

Techno-Venture Park

Campus groups will create a new culture of technology centering around research and development.

Techno-Community

Will create a new culture of life, leading to highly technological urban industries. This shall aim to promote and re-arrange urban infrastructures. infrastructures.

Tecnopia

This zone shall deal with changes in industrial structures around Kawasaki Station, as a district of one million people, and adjust itself to revive urban amenities and cultural functions.

Techno-port

The aim is to create a new culture of international communication utilizing location benefits. It shall re-arrange industrial sites with improved environmental qualities while fostering international communication of technologies and culture, utilizing the benefit of international access systems. The purpose is to create an international culture with the twenty-first century as its theme.

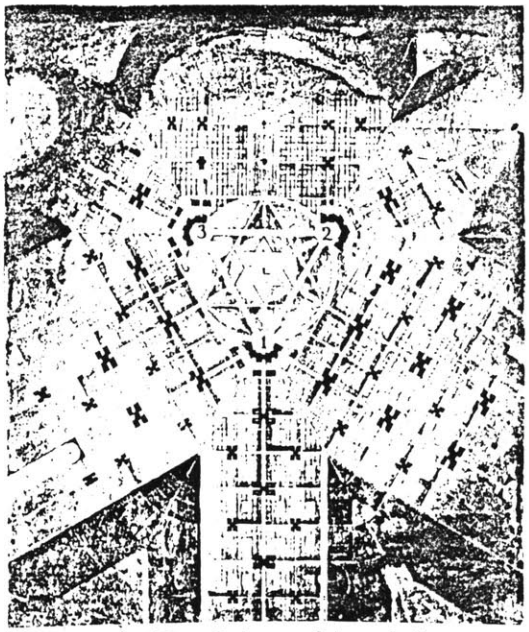
Multi-Communication Network As Connecting Link

The campus city festival will expose the idea of Kawasaki to the world, to create a link with the rest of humanity. This will be achieved by making use of a variety of intelligent plazas connected by a communication network, as well as the public buildings and open spaces scattered throughout the city. International exchange programs, using communication sattelites shall be used. Curiously, the envisaged plan seems to divide the structure into distinct zones. These artificially defined zones are as follows;

a. Zone of health and nature
b. Visitor Center: Media terminal [railway station], Guidance systems
c. Zone of Human Environments, Marine, Energy and Environmental Safety
d. Zone of Citizen Friendship, International, Administrative, Business
e. Zone of Technology and Human Life, Educational, Cultural, Living, Civic
f. Zone of Science and Culture. Electronic, food, scientific, medical
g. Satellite offices. Tokyo and its sister cities
h. Teleport complex
i. Event Square
j. Temporary plazas
k. Home monitoring

It almost seems to be de-humanizing the environment, rather than unifying it. In some ways, it is going back to rigid zoning plans of the past. The plan for Kawasaki, is neither an innovative, nor a particularly revolutionary idea. Rather than breaking away from traditionally conceived notions and setting new trends, it seems destined to establish past visions.

Fig. 114



Hugh Ferris: 'The Metropolis of Tomorrow'
The Three Centers of the City

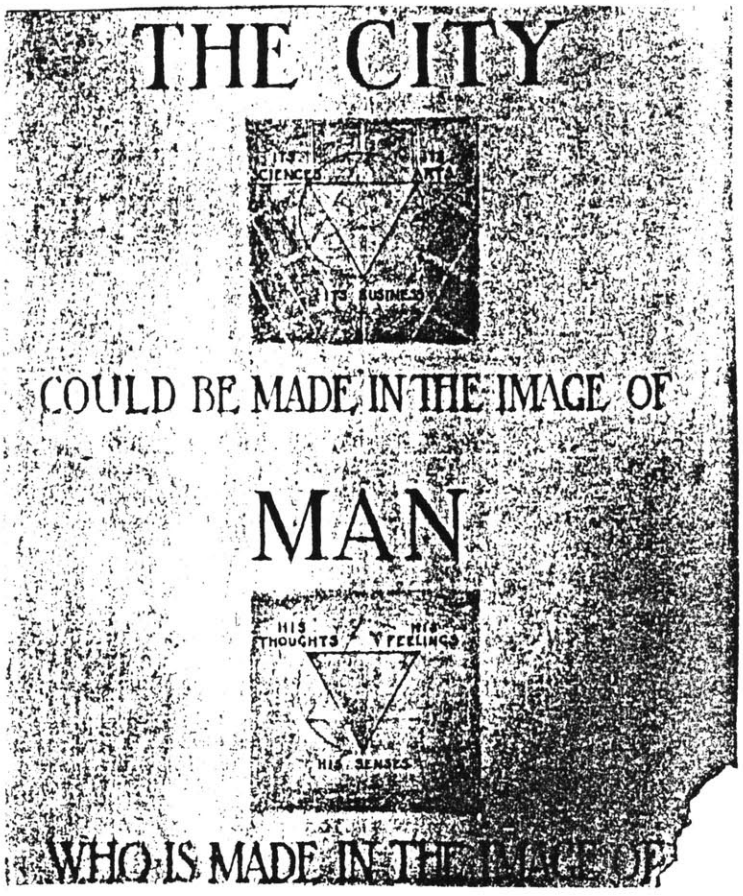
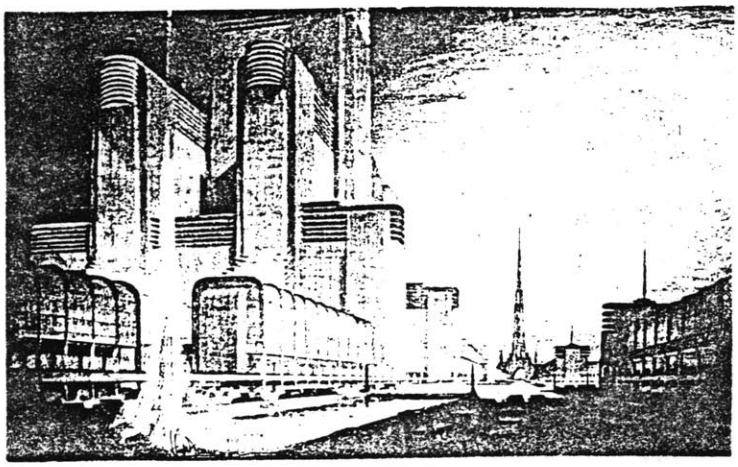
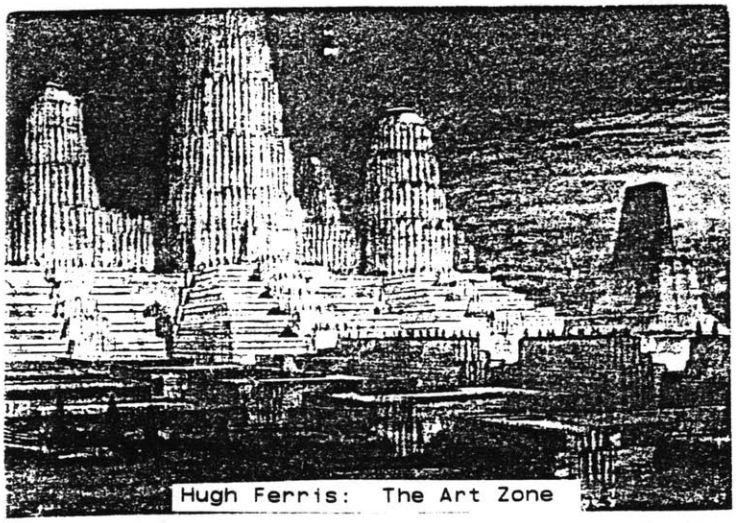
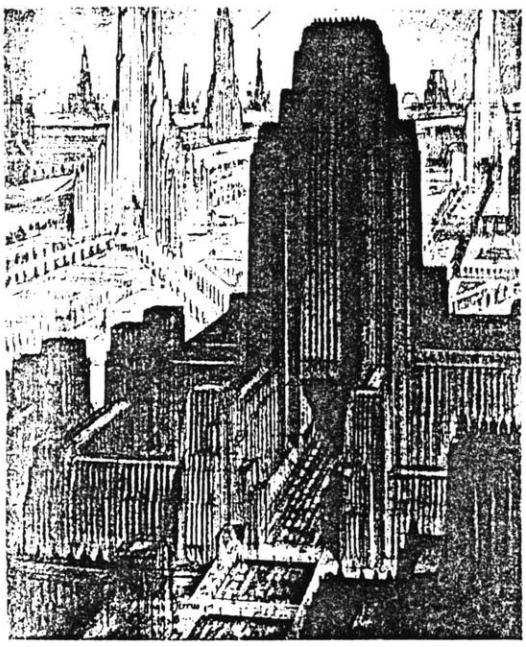


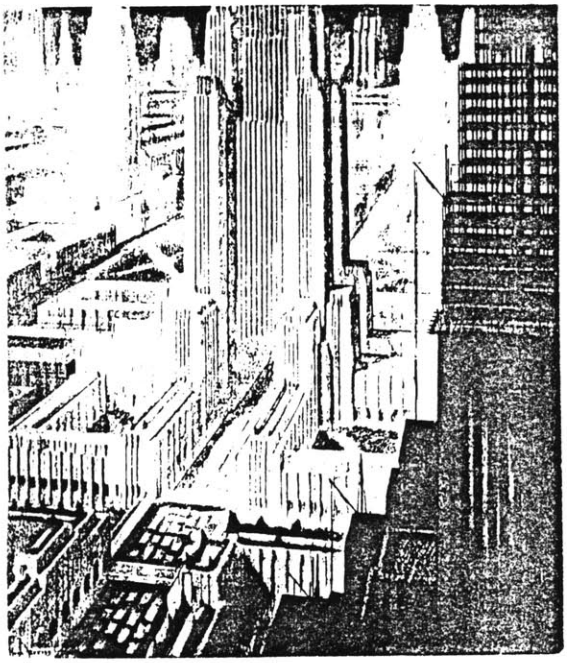
Fig. 115





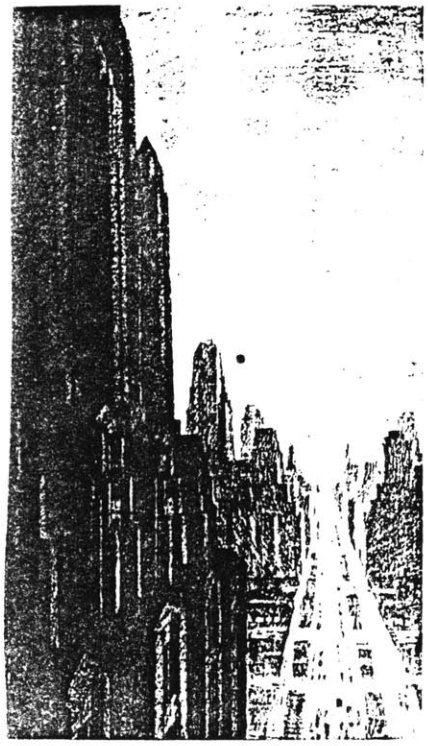
Hugh Ferris: The Art Zone

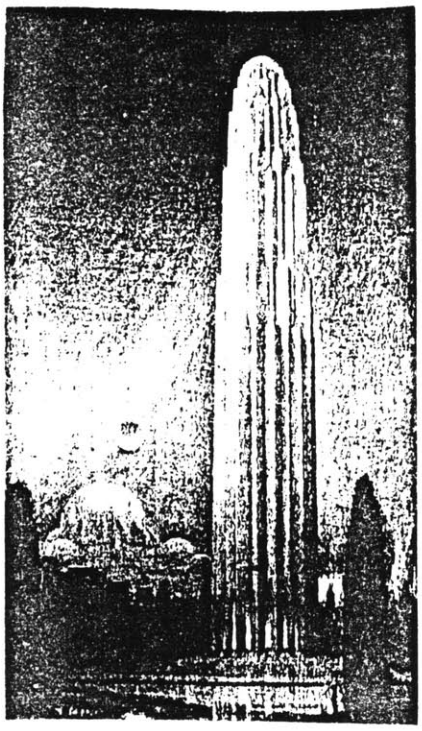




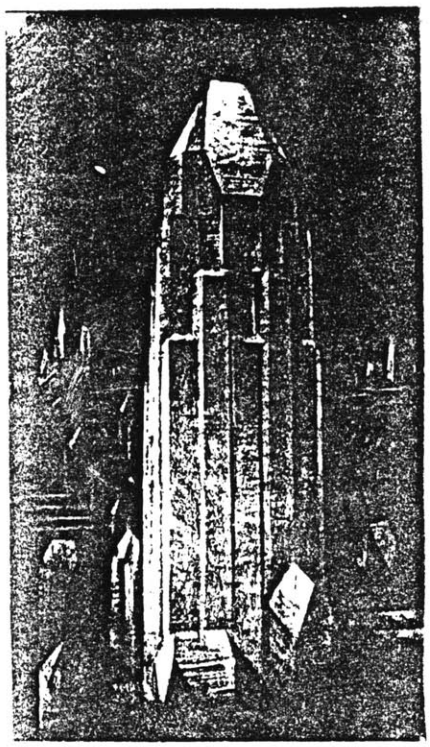
Hugh Ferris: The Business Zone

Fig. 116



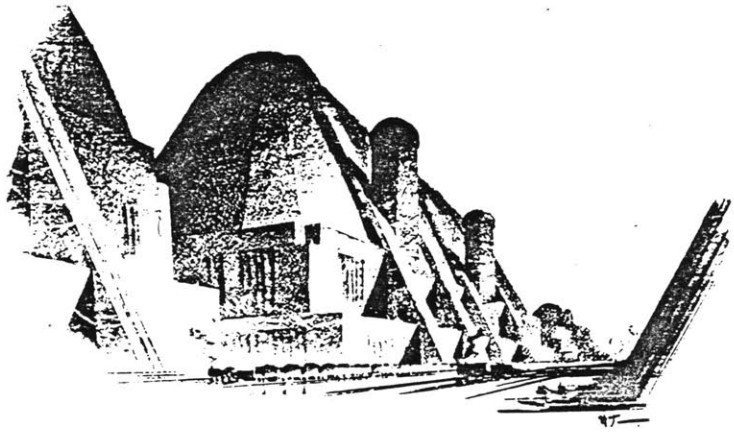


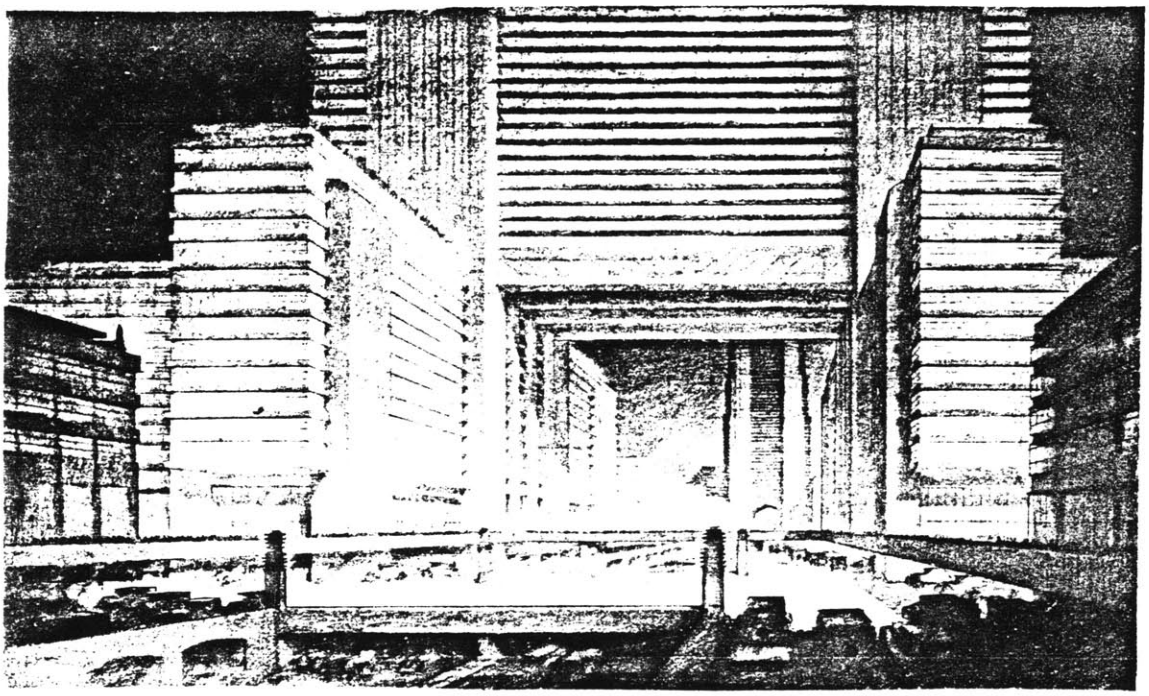
BUILDINGS like crystals.
Walls of translucent glass.
Sheer glass blocks sheathing a steel grill.
No Gothic branch: no Acanthus leaf: no recollection of the plant world.
A mineral kingdom.
Gleaming stalagmites.
Forms as cold as ice.
Mathematics.
Night in the Science Zone.



Hugh Ferris: The Science Zone

Fig. 117





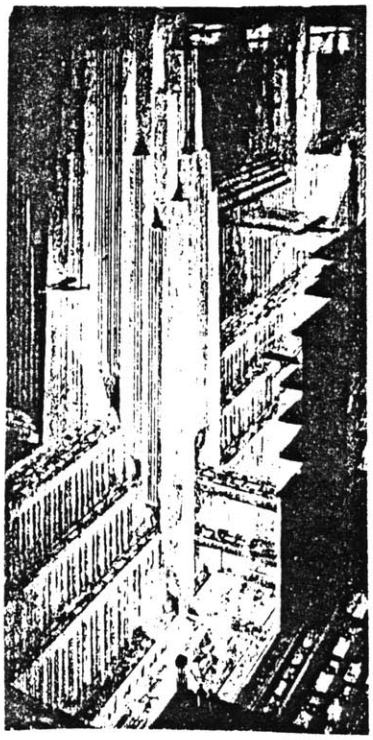
As far back as 1929, Hugh Ferris predicted the shape of things to come, in a book called "The Metropolis of Tomorrow". In his visions of the New York of tomorrow, it is curious to see how he divides it into zones. In 1919, the most formidable restraint placed on the growth of American cities, was experimentation with zoning law. In this book, he says:

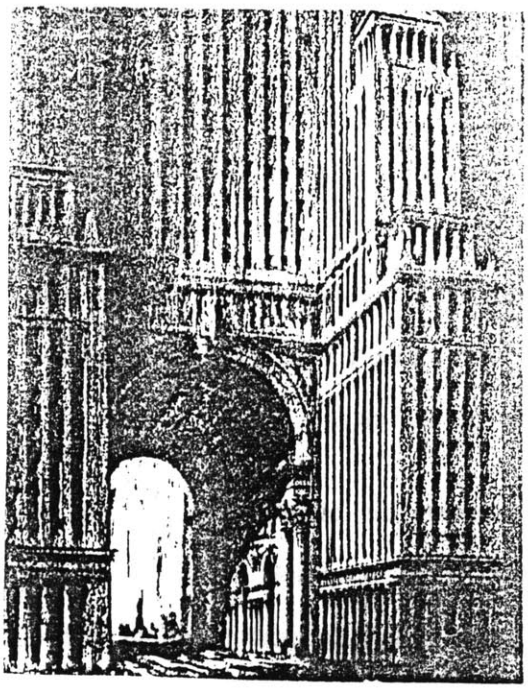
> "From the point of view of Design, it is interesting to recall that the Zoning movement having its genesis in just such considerations as have been mentioned was not at all inspired by concern for its possible effects on Architectural design. The recollection is interesting because the actual effect of the law was to introduce what is often spoken of as no less than a new era in American Architecture. The whole procedure constitutes another example of the fact that the larger movements of Architecture occur not as the result of some individual designer's stimulus but in response to some practical general condition.

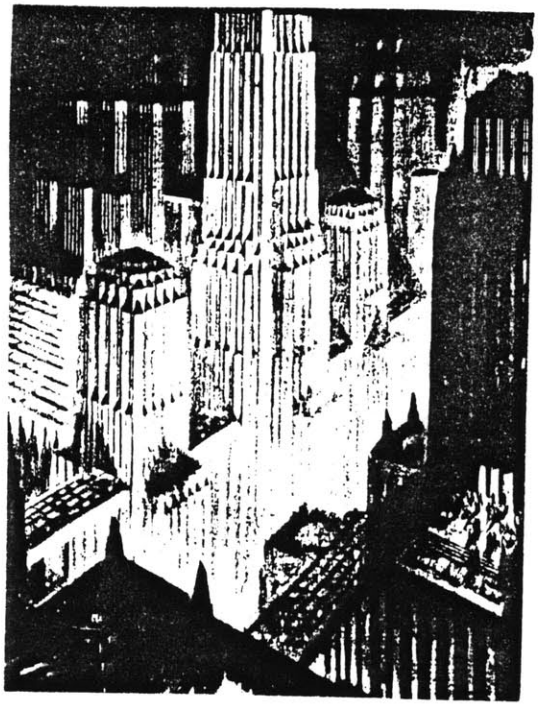
Although Ferris, projected images of the city itself, there seem to be none for the proposed Kawasaki plan, which makes it difficult to conceive architecturally as a whole. The city-wide plan proposed by Ferris was distinctly divided into three main zones, with a very rigid and exact geometry [Fig.113]. As the given figure shows, Number 1 is the business center of the city [Fig.114]. The circular area upon whose edge it stands is the principle open space of the city. The district which lies below the business center, as well as to the right and left of it is penetrated by avenues radiating from the center. The tower buildings, in business activities and grouped about them, the chief industrial sub-centers, all expansion must be along radial lines.

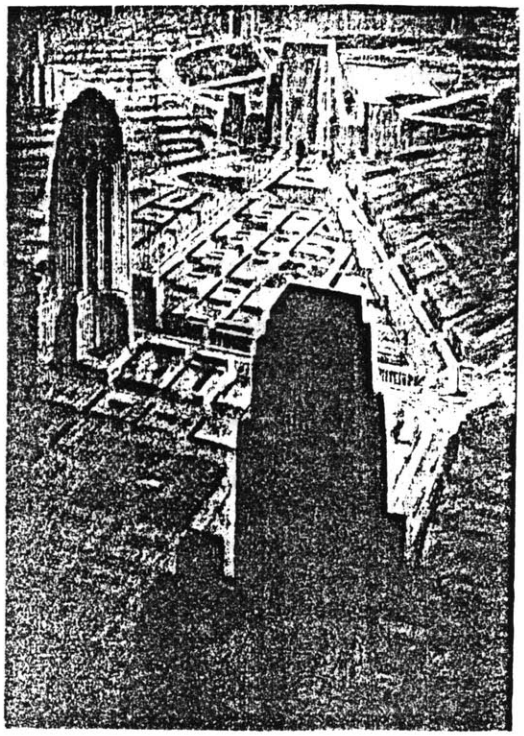
Number 2 denotes the art center [Fig. 115]. Similar to the business center, radial lines extend outward from this center constituting the arterial system of the art zone. Tower buildings in this section constitute civic activities such as drama, music, architecture and so on. The third structure, number 3, upon the circumference of the civic circle, is the science center or the zone of science [Figs. 116-117]. It occupies

Fig. 118









a dominating position in relation to the other zone behind it like the two other centers.

In addition to the radial avenues which have been mentioned and which connect the various zones with their respective centers, there is also a suggested system of circumferential avenues which connect the three zones with each other [Fig. 118]. These were intended to facilitate contact and communication between the principle activities of the city.

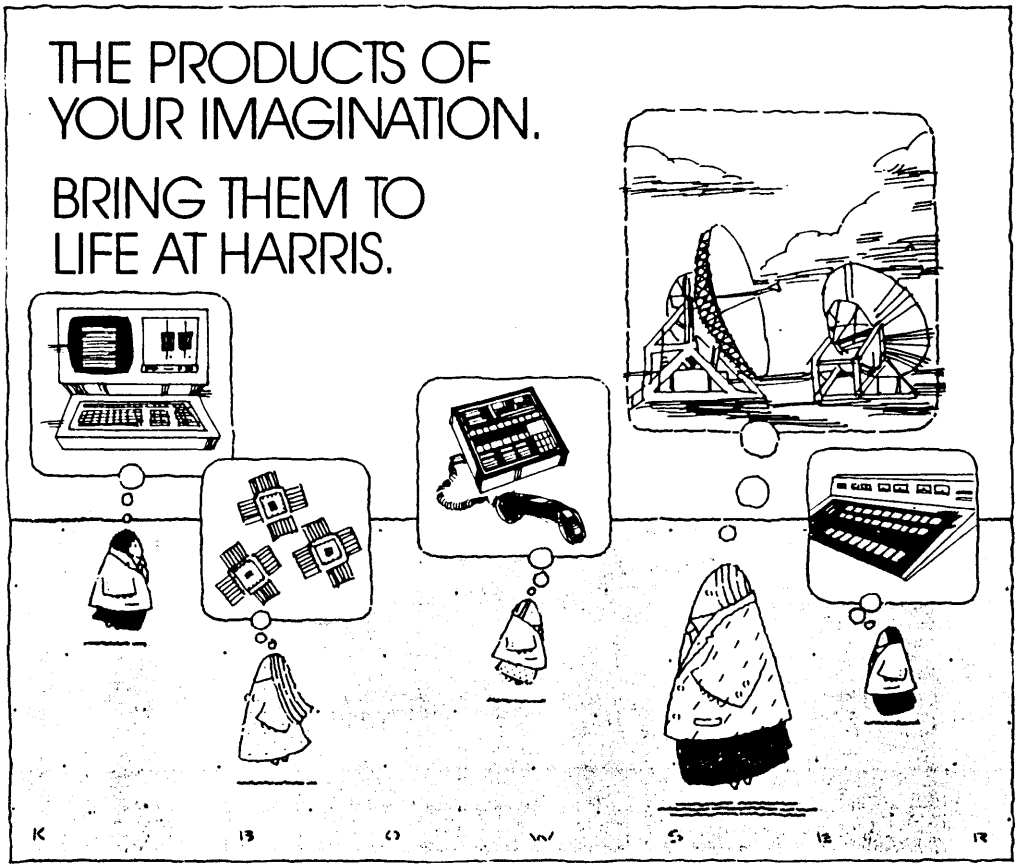
Ferris supports his observations with an anonymous manuscript that he found partially mutilated. This proposes a tri-partite link between business, science and art made analogous to man's thoughts, feelings and his senses.

The division could have been a plausible one in 1929, but today when every aspect of life is becoming inter-dependant and inter-disciplinary, the idea of such strict zoning becomes limiting and full of constraints. It is curious to find the proposals for Kawasaki City suggesting a similar zoning pattern, one that by default seems difficult to implement. The towers in Hugh Ferris' visions are located according to a city-wide plan. The city is zoned not only according to height, but also to use and as Ferris says:

> "A question arises, incidentally, as to these tower buildings. They are very tall, and cover enormous ground areas; each must house a multitudinous activity; each stands in a considerable isolation from other buildings of the same species; each dominates, and is, we may assume, the center of control of a particular district. Is the word "building" any longer sufficiently definitive? For the sake of simplicity, let us adopt for them the term "center".

This vision of Ferris was, not realized in our cities, they do not stand as open vistas between towers with centralized functional units, instead physically our cities are constituted of several towers, one after the other. There is a certain visual

Fig. 119


THE PRODUCTS OF
YOUR IMAGINATION.
BRING THEM TO
LIFE AT HARRIS.

fragmentation since no one 'unit', or 'tower' can be seen from a distance as a distinct pre-dominating entity.

Ferris' building center stands as a series of towers of differentiated heights, all inter-connected. The arts center is situated about a mile from the business center. At some distance is the 'science center' or zone. This consists again of a central mass, supported by large wings, the whole extending over adjoining streets to embrace outlying structures. These three centers, constitute the nucleus of the city. Each dominates a wide district, and so one can finally say that *the city for him was dominated by three zones. The business zone, the art zone, and the zone of science.*

In contrast to the situation then, things today have radically changed. New technologies of the communications/information revolution have contributed to a fundamental urban transformation. "Telematics", ie: the technologies of commiunications, computers and information are the central physical entities of today. Today, and in the future they will affect the production, storage, handling, use and dissemination of information [Fig. 119]. Much of this is explicit and inherently understood by the Japanese Planning Commission, however their interpretation of it leaves much to be desired. It seems analogous to the early 1900's, and does not seem to take account of these changes realistically, when interpreting them in plan and physical form, both of which must go hand in hand. The planning for Kawasaki, seems integrated, according to its own inherent logic, but gives no hint as to the physical manifestation of the idea, which results in a major flaw and is a visible drawback in the vision.

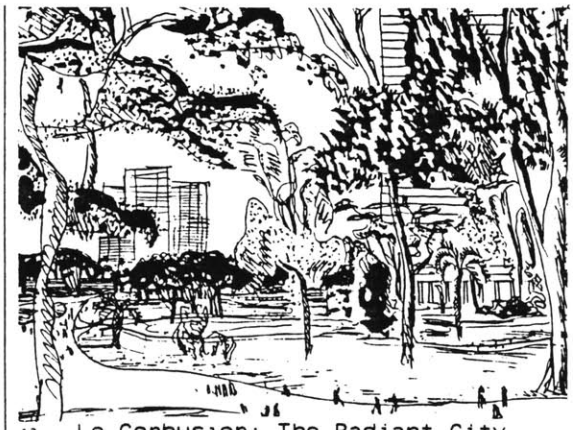
Use of the word *'techno'* becomes important in defining the nature of each so-called zone. Techno, is interpreted at a different level, one that involves communication and information networks, rather than prior definitions of technology.

Technomorphosis

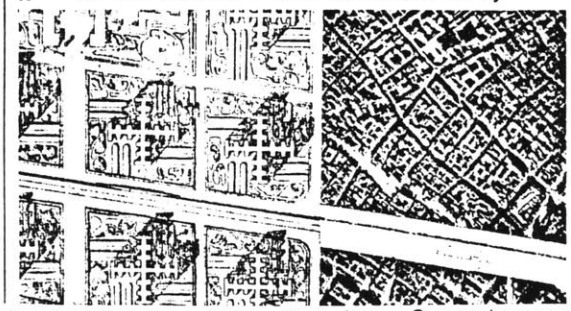
The importance of referring to the above lies in the fact that serious thought is now being given to creating a city like the one mentioned above. It is a strong indicator that the world is beginning to re-define its understanding of space, form and function. As this seems to make relative references to visions of the past, rather than projections towards the future, it further proves the time-lag theory suggested earlier. But the idea that information systems will play an important part in structuring cities, ideas and events in the future is becoming an undeniable trend.

Inspite of the current process of transformation underway at Kawasaki, the formation and final implementation of a plan such as the above, seems to be a matter of speculation. Its aims and objectives are almost too utopic, to be fuly realised. Its final shape will undoubtedly be a matter of interest to planners and designers.

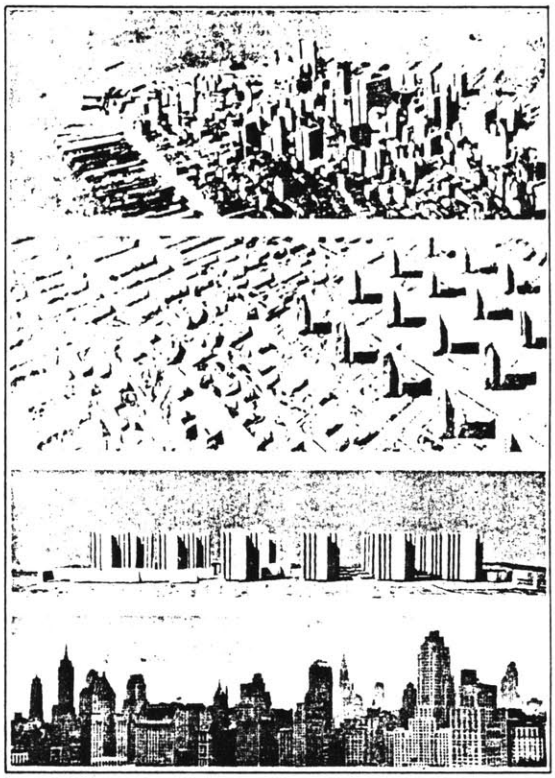
Fig. 120



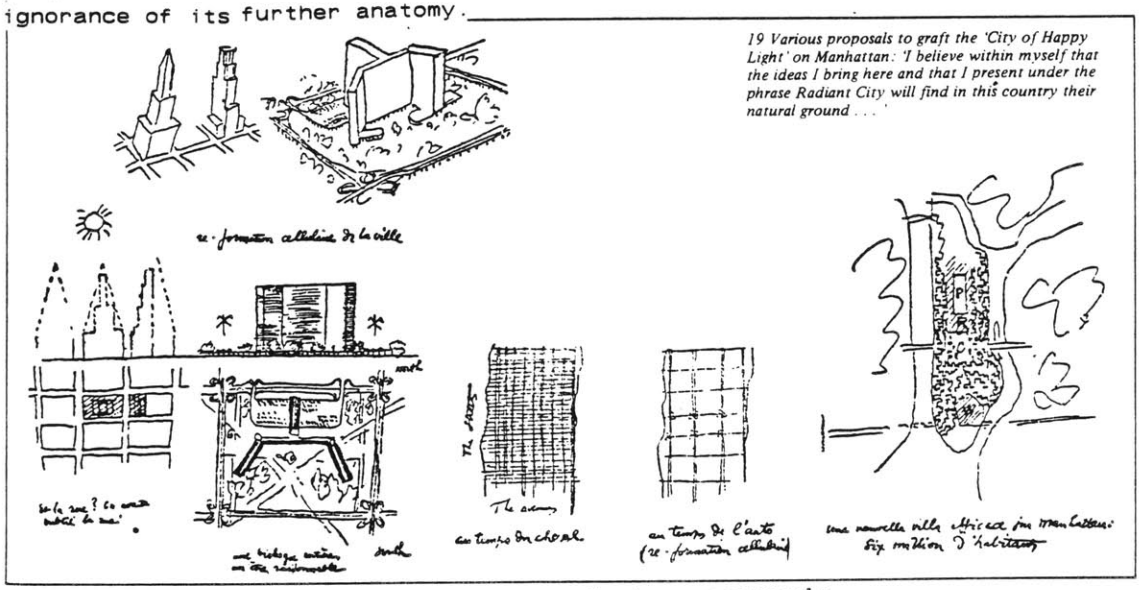
13 Le Corbusier: The Radiant City



Le Corbusier: Plan Voision. Superimposed on Paris according to the Surrealist formula of the 'Exquisite Corpse', whereby fragments are added to a body in deliberate ignorance of its further anatomy.



Le Corbusier: Paris - New York



Le Corbusier: Various proposals

Manhattan: The City as an Object of Revision

"The city is a neurotic person"

Lewis Mumford

The concept of the city as an organism in conflict was realised long ago. External situations have further accentuated the increasing condition of 'schizophrenia', that our cities have come to manifest. It is a clear reflection on contemporary society, where conflicts of existence are becoming increasingly complex and difficult to reconcile.

New York city, particularly Manhattan based on the inevitable grid, can be characterised as *'an object of revision'*. It is a city that is constantly being re-interpreted and re-layered thorugh continous immersion of new ideas [Fig. 120]. The impact of the current imposition of the information revolution is best seen in New York, a multi-faceted manifestation of a diverse eclecticism.

The city, is in essence, a totality based on individual buildings and spaces. In this sense, it can be interpreted on two levels, one consisting of the relationship between the pieces, and the other an understanding of the whole as a composite feature. The question then is to define, and give coherence to the whole, through unifying elements and identifiable objects. Much of the architecture in our cities today, can be termed monumental and static. There have been numerous attempts to revive classicism, resulting in an accumulation of dead and empty forms.

Coming to a contemporary expression in city form, there is a need to understand when and how, architecture transcends the realm of the classic and prosaic, and shifts to a newer dimension, which is influenced by the information age, and is resulting in a phenomenon called "Technomorphosis". This 'realm' is intangible and difficult to define in terms of the built environment. Albert Einstein very convincingly stated our dilemma when he said, *'The characteristic of our time is the perfection of tools,*

and the confusion of aims'. This confusion is evident, in the way our cities are shaping themselves.

The contemporary semiotician is in the process of revising traditional conceptions of 'the meaning of architecture'. The principle whereby semiology is generating novel insights is one being exploited by a new information motivated expression. Max Bense, doing work in the field of architectural semiotics, suggested in a piece called 'Urbanism and Semiotics', the increasing semioticisation of our troubled external world, alluding to the increasing number of signs which are found in our cities.

> *'Firstly there are more and more signs, shop-signs, advertisemets and so forth, that is sheer words that our mode of apprehending the objects of perception strictly resembles the process of reading. One moves not only amid things, but also amid signs, above all amid words'*

Urban systems are only viable by virtue of their being completed and re-inforced by semiotic systems. These are the intermediaries between urban architecture and urban consciousness. Taking this as a departure point, cities like New York have evolved and moved on to much more sophisticated and efficient information and sign systems. The city is becoming more and more analogous to pre-wired circuits and chips. The city of New York in particular has layer upon layer of different orders and signs and systems.

Hugh Ferris in his projections for New York, envisioned isolated towers interspersed within the city. The rest of it being what he called 'plains', the towers being 'summits' or 'peaks'. He wanted these skyscraper units to be seen from a distance and said in 1929:

> "The fact is that in the general run of cities, the tall individual skyscraper, however, well designed can very seldom be individually seen. That is to say, juxtaposition is so close that only bits of the structure can be seen at one time by the pedestrian. Only by craning the neck does one see the whole of a tower; and then, of course, one sees only a ridiculous distortion. But in the city, now before us, each great mass

> is surrounded by a great spaciousness; here, we may assume, the citizen's habitual prospects are ample vistas. Without altering his upright posture, his glance may serenly traverse the vista and find at its end a dominating and upright pinnacle."

The city of New York has proved to be an object of constant revision. It did not comply with Ferris' visions. It is dominated today by endless skyscrapers all seeming to blend into each other. None can be seen as a distinct seperate entity either from far away or nearby. There exists today a constant super-imposition and layering within the physical environment. Unlike Feriss' vision of distinct clusters dominating zones, which is exemplified by what he said:

> Buildings like crystals
> Walls of transluscent glass.
> Sheer glass blocks sheathing a steel grill.
> No Gothic branch: no Acanthus leaf: no recollection of the plant world.
> A mineral kingdom.
> Gleaming stalagmites.
> Forms as cold as ice.
> Mathematics.
> Night in the Science Zone.

New York today, is a story of 'visual fragmentation', each view is incomplete and transformed by the imposition of another. It is therefore layered, constantly differentiated and never static, changing as the viewer moves. Above all today it is super-imposed by the invisible world of communication networks.

The man of the 20th century is evolving towards a different environment, towards the surrealism of the 21st century.

The Grid of Abstraction

As an expression of their identity, earlier communities enclosed meaningful social, religious and cultural practices, within a protected boundary. The Temenos, Acropolis and medieval city wall were all built for defense, they consisted of strong visual forms that gave identity to the people of the society. Towers, ziggurats, obelisks,

triumphal arches and so on can be interpreted as monumental sculptures symbolizing their societies.

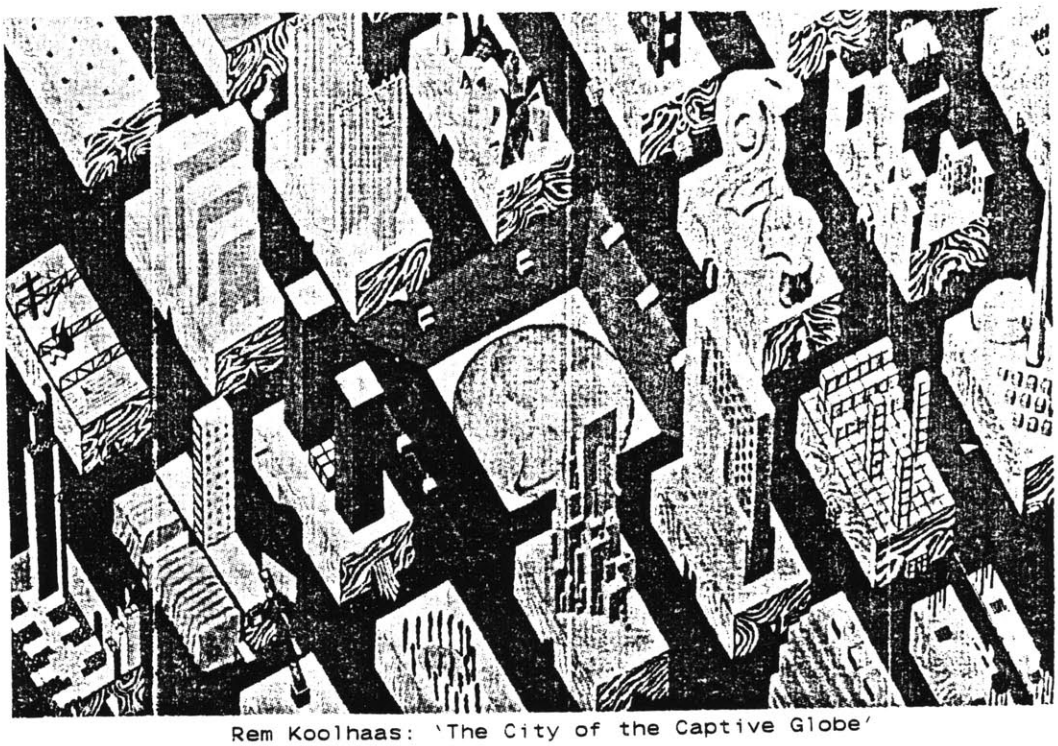
The Grid, is one of the oldest and most generalized methods of super-imposing a human order upon nature. Greek and Roman colonies employed the grid to establish their rule and culture upon new territories quickly and efficiently. contemporary interpretations of the grid, as seen earlier use it as a tool to help define the nature of order, especially in landscaping. The most important addition is the 'injection of content'. Contemporary applications of geometry, do not exhibit the rigidity of earlier environmental concepts, but as abstractions generate new design philosophies, creating an architecture that is communicative and flexible.

By this, I mean the constant imposition of new orders on an existing gridiron fabric. Strangely Manhattan seems to be able to comfortably assimilate these additions. The nature of the grid, seems flexible enough to absorb new ideas and thus is in a state of constant flux. The traditional syntax of the grid seems to explode with this layering or retro-fitting. Despite the obvious differences between static societies of the past and the mobility and fast-changing patterns, so characteristic of the present, geometry can be useful in visualizing conceptual socio-cultural conditions.

This retro-fitting seems to find a perfect synthesis in a city like New York. The newly arrived information age with its growing inter-connection between computers and telecommunications has the possibility of transforming urban society. Alvin Toffler rightly ranks computers as:

> "Among the most amazing and unsettling of human achievements, for they embrace our mind-power as the Industria Revolution enhanced our musclepower, and we do not know where our minds will ulitmately lead us".

Fig. 121



Rem Koolhaas: 'The City of the Captive Globe'

Used in new architectural associations, geometry might become a means of relating outer forms to their inner psychological associations. The internal structure of things and their essences are becoming an architect's pre-occupation, images mirroring images, ideas of rhythms and repetitions. These begin to suggest interior qualities latent in spaces and forms. They imply a correspondence between what is seen and what is reflected or hidden from view. Positive and negative complement each other.

A retro-active manifesto for New York, is the book by Rem Koolhaas/OMA, called 'Delirious New York'. It describes the phenomenon called 'Manhattanism', embracing a myriad of mutually incompatible styles, even in single buildings and extending throughout the urban fabric. This conflict is evident in his drawing 'The City of the Captive Globe', which was an intuitive manifestation of the essence of Manhattan [Fig. 121]. New York, essentially can be seen as an *experimental exploration of the manner in which the artificial replaces reality.* Through it, we find a new definition for the 'culture of congestion.'

In the model of urban solid and metropolitan void, the desire for stability and the need for instability are not incompatible. They can be pursued as related enterprises. Construction and de-construction propose a post -architectural landscape, a blending of different orders and disciplines. The kind of coherence achieved can be, at most a system of fragments, a collection of multiple realities.

To resolve the friction between program and containment, all previous notions must be suspended. For Koolhaas, Manhattan resolves its own conflicts through its grid and block structure, which combines the aura of monumentality with the performance of instability. One finds a synthesis of the plausible relationship between architecture, modernity and the metropolis. This version of what New York City is trying to do ie: capture the world's ideologies and styles, is a kind of eclecticism and pluralism by

juxtaposition. Expressionism confronts Le Corbusier, Malevich is at odds with Mies, and no dialogue ensues as the super blocks float around in their mutual isolation. Today the city and man seem to be merging more than ever before. This relates directly to what Koolhaas tried to do in Parc La Villette, and Tschumi's concept of 'programmmatic explosion', once again verified by the use of the grid. Whether it be in the form of linear bands or the use of 'follies' at intersecting points, suggesting a rupture with previous ideas of containment. Here abstraction and reality blend in a unique way.

Books like Breton's 'Nadja', tell more about cities than any town planning report, and surrealist paintings include several dream cities, admirable places subjected by their own weight. There is a host of fantastic dream like cities to be found in the art and literature of the past. The word 'fantastic', implies divergence from the normal, a state of reality, which seems to break rules of causality and natural laws. There was an attempt to create an arcane urban synthesis, mirroring the cosmological symbolism of the very first cities of Mesopotamia and Egypt. Utopias describe the city as a troubled analogy of the world itself. The last project of surrealism in 1933, featured a pre-dominantly architectural project called 'On Certain Possibilities of Irrational Embellishment of a City'. What the surrealists swore to, was an allegiance to a different architecture modelled on inward thought processes. Parc La Villette, and New York, are the evidence of this continuing quest, today an explicit reality, of containing opposing orders of abstraction in a manifest concrete reality.

De Chirico called the new order of experience or surreality, 'The Spectrality of Appearances', the feeling that certain places in the city's repertoire were charged with an almost metaphysical power . This gave confirmation to the intution that a 'second '

reality lay within reach, a realm which ordinary appearances i.e. habits of unliberated perception tend to conceal.

Manhattan is a metropolis where various elements are juxtaposed, simultaneously supported by the most fantastic infra-structure ever devised. In 1935, the New World became irresistible for Salvador Dali, and resulted in him saying:

"I want to go to America, I want to go to America....."

Dali, met reporters on his arrival in New York with a loaf of bread 2.5m long, this was promptly ignored by the reporters who were there to see him. And so Dali's first discovery was that in Manhattan surrealism was invisible."

If a 2.5m loaf of French bread becomes unnoticeable, there can be no such scale against which its intended shock waves can register. What this little episode really suggests is that Manhattanism = Surreality.

Technological transformations have changed not only world cultures, but also the inspiration for their cultural ideals. The city as a concept can be described as a *'Communication Network'*, is the ideal machine for accomodating a conglomeration of physical and psychological needs, or as an organism composed of people, vehicles, buildings, parks and circulation patterns. These new technologies will greatly multiply capacities for storage, transmission and manipulation of information. With the example of New York, I am investigating the nature of the juxtaposition of this information age with an eclectic, diverse and conflicting urban fabric, that already exists. *There seems to be the super-imposition of a new structure beneath the visible form of an already established infra-structure.* The urban fabric has added another layer and a newer dimension to itself, which calls for a continously differentiated program.

This raises the question of a *paradox of functionalism related to architectural form.* The orchestration of relationships results in a symbiosis of the old and the new, where the articulation of spatial language and the meaning of types takes on a new dimension. This reading of a tradition transforms itself throught the development of prototypes followed by an extension into a newly realised structure. This can be termed as a 'forward looking utopia', where images and expectations result in a cross-breeding of different traditions, ie; modernism, regionalism, internationalism, extending into and becoming part of a universal civilization. It is essentially an experimentation with a new life-style resulting in new value systems, in other words re-moulding a mind-set.

New York today, because of its rapidly growing and intense information and communication activities further re-inforces, preserves and maintains the city as an *information and cultural center.* At a micro-scale this is analogous in meaning and interpretation to the program for Parc La Villette, and the Universal and Tsukuba expositions. We already see a defined change in translation. The strategic use of the city's resources acts as a consumer of communiction services. In this changing world, there is a need to study the adequacy of physical settings, that will become important insights for future designs.

New York has already established a fibre-optic ring around Manhattan, it is currently the leading U.S. departure point for international communications traffic. The central business district of New York is now referred to as a 'Telecommunications Park', the fibre-optic link on the perimeter leads to a planned *major communication satellite-office park project.* Creating a center of dominance in information handling activities in New York. Electronic publishing, videotext, teleconferencing, sound simulation and many other electronic systems, represent prototypes for future

home–office services creating a flexibility in quantity, capacity and diversity. We thus see the use of modern technology as a tool to shape and change our social and physical environment.

New technologies have overcome traditional geographic boundaries by achieving communication electronically rather than by face to face interaction. In an information based society, the economic viability of a city depends upon communications infra–structure. Its ability to receive, process and send messages. New York city's growth as an information capitol has been made possible through the advent of telecommunication systems, which allow varied functions to be accessible to almost all locations.

New York Telephone's recently completed 18,000 circuit fibre–optical ring around Manhattan, links twelve major switching centres. The dominance of information handling activities in New York will generate even further changes in the city's infrastructure in the coming years. Telematics and electrical networks will make more effective use of underground space. As fibre–optics replace copper wire and co–axial cable, telematics will become just a routine part of all structures. One can expect plug–in telematics just as routinely as we now plug–in electricity.

The enormous capital investment in computer and communications equipment in conjunction with the international character of New York's financial operations has led many institutions to run their operations on a twenty–four hour basis. Although thesc new information technologies have transformed the function of the New York metropolitan region, the form remains mostly unchanged.

Technomorphia, finds a comfortable home in New York. It is assimilated beautifully into this ever changing scenario of content and activity. Our perceptions of the world

change with the growing power of advanced communication technologies transforming the form and function of our large metropolitan infrastructures. This is resulting in the *re-definition of pre-conceived modes of thought in temporal,spatial and visual thinking, leading to a further definition of fragmentation. The computer acts as a device for annihilating time and space,* and so we come to the notion I presented earlier, that of the city becoming analogous to the process of

Receive - Read/Retrieve

Process - Store

Send - Manipulate - 5th Generation?.

Communication technologies will strengthen cities that serve as large multi-national headquarters for firms. *The vitality of the city will increasingly be a product of messages that flow in and out of it,* and through an urban system/region. The important components in the city of the 21st century will be

Indicators - Information flows

Active Role - Public sector

Teleports: Alternative ways of dispersing information

The teleport essentially functions like an airport. The public sector provides access to facilitate linkage with communication satellites, the success of this precludes a collaboration between the public and private sectors.

The teleport facility for New York, is based on Staten Island, and part of it has been functional since spring 1985. The purpose is to provide a satellite communications center and 'Office Park for the Future'. This will supply quality office space, specially designed facilities for telecommunications and information processing. With this we

find a rapid penetration of computerized equipment into the office. All systems will eventually be linked to an integrated network.

This describes in a larger and more intangible way the subtle transition into an era of *invisible fields and linkages,* much of which is described in Tschumi's work, described in part II of this investigation.

The repurcussions and reactions of such an intervention has resulted in several other cities making efforts to build their own teleports. We are heading rapidly towards a literal translation of the *'wired nation'.* The infrastructure of the community will change with the introduction of satellite offices, joint eating establishments, support services, back office clusters, multiple unit residential buildings will change with shared support services such as teleconferencing, telecommunications and meeting places. This will result ultimately in physical change and distribution of buildings and space.

Transference and Juxtaposition of Symbols

Design considerations will determine whether a function requires visitors or whether or not the business requires employees at all. The number of employees have obvious implications for space utilization, utility placement and future expansion or contraction of space. A series of changes in our traditional notions of types will explode, being replaced with a new synthesis of form and function, and so environmental symbolism will change its meaning.

Communications and electronic data processing technology will not only result in changes in locational decision-making but also in physical seperation of units of the same firm. Support systems and managers will be housed in different buildings and areas. Electronic communications will eventually create a paper-less office. Supervisors and sub-ordinates will not have to actually meet. New relationships will be created

between the worker and support equipment, resulting in digitized voice communications and a dispersal of job sites.

By breaking the barriers of time and space, we simply describe a new way of interpreting reality into fantasy or fantasy into reality. The definition is juxtaposed as the inherent contradiction in expression is still undefined. Thus society becomes an information processor, leading to a change in our 'basic categories' of thought, so:

Space = used as a structure of information

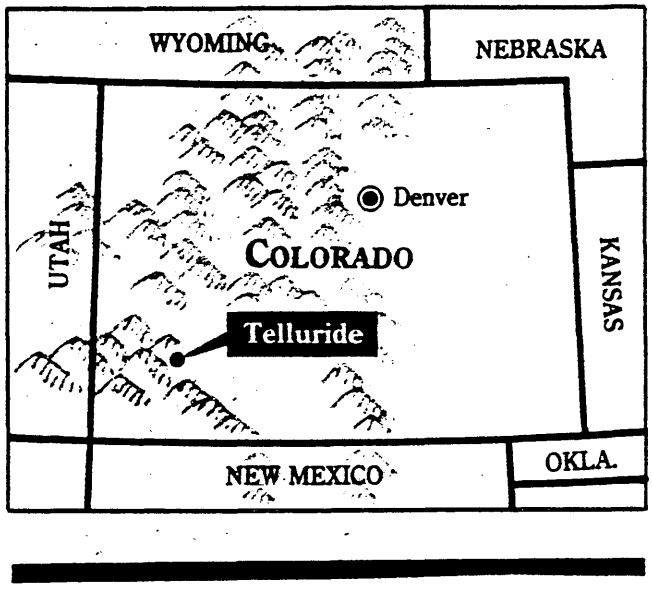
Society = storage device

The machine begins to simulate the real world. This is represented in much of the work described earlier, that of Tschumi, and Koolhaas for the creation of open space for the 21st century and of Jean Nouvel for his Arab World Institute. The correspondence between the computer, as a machine and the environment is achieved through simulation techniques. Our fantasies and illusions of space are transformed. The manipulation of finite space on the computer frame is defined by an underlying order that begins to interpret the

Environment = As a Frame or Field

Space and Time therefore become manipulable on the machine frame, flexibility and dynamism replace the static and undetermined areas in architectural representation. Larger investments are made in the 'information worker', resulting in a shift from labour-intensive to knowledge-intensive work situations.

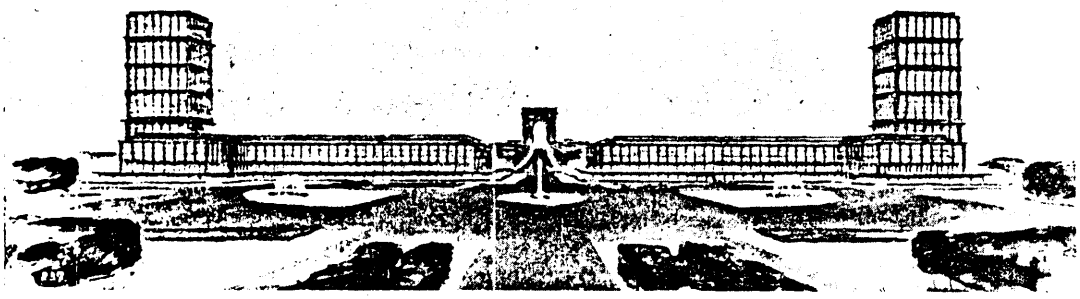
Fig. 122



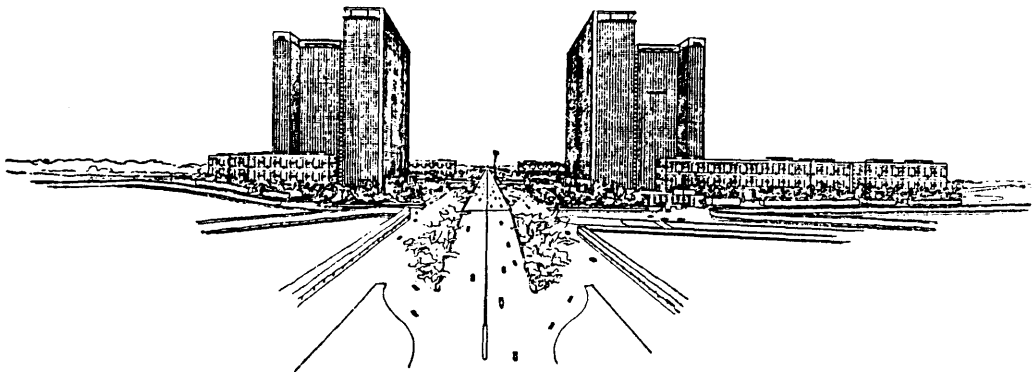
"You but arrive at the city to which you were destin'd,
you hardly settle yourself to satisfaction before you
are called by an irresistable call to depart.....
They go! they go!"

Walt Whitman, "Song of the Open Road"

Fig. 124



A. Perret. Porte Maillot, Paris



Le Corbusier. Porte Maillot, Paris

TELLURIDE - COLORADO: GENERIC CENTERLESSNESS

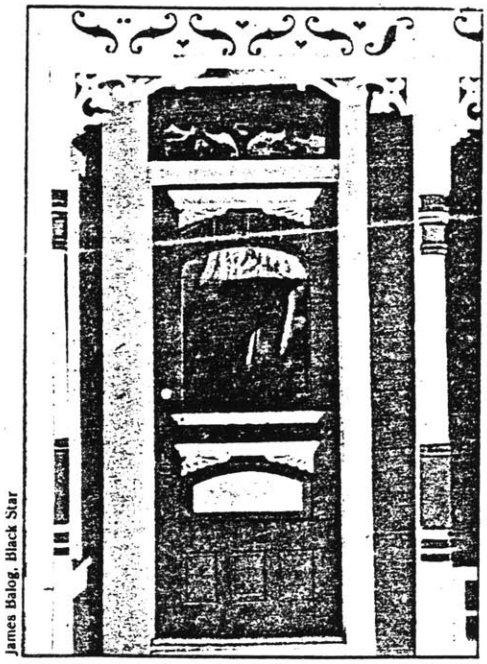
To a New Space-Time Synthesis

Taking New York to be a simultaneous representation of surrealism and reality, I would now like to turn to a third scenario in this series of understanding transformations in our notion of city form. Telluride is the latest 'getaway' to facilitate the meeting of minds. It is a concrete form of the *'Global Village'* of the sixties. Telluride is a town barely three blocks long with some outlying homes, cats, dogs and a population of less than 1500 permanent residents [Fig. 122]. This remote town seems to be the latest mecca for America's trendsetters. When I talk of Telluride, I refer to it as a generic town. John Naisbitt, one of America's leading futurologists uses it as his regular hideout. In contrast to the rugged natural environment, the buildings in Telluride have an arrestingly flimsy and unsubstantial appearance. Most of them look like instant and not very successful antiques, as if they were part of some pre-fabricated stage set in Disney World. Many of the buildings are frivolous, painted in bright blue, orange, pink, cranberry and purple [Fig. 123].

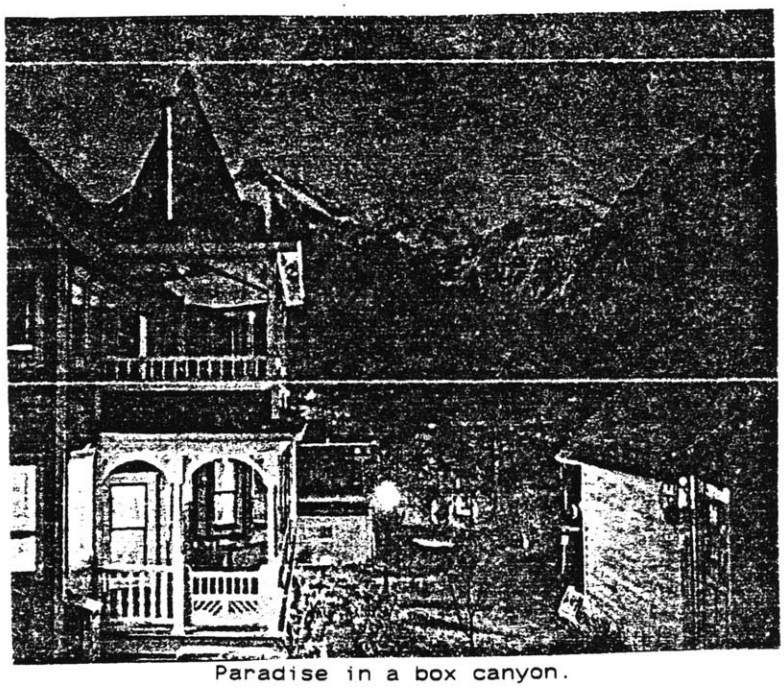
Le Corbusier seemed to find a synthesis between technology and classicism. He was thus able to rejuvenate classicism, and give it meaning again. Much of what we see as mainstream architecture today ie; post-modernism, is an eclectic mix of classical elements, in essence still backward-looking. Le Corbusier at the entrance to his 'Ville Contemporaire', planned gates in the shape of triumphal arches. Thus arises the need regarding the importance of identity in the city, and whether we have to resort time and again to archaic forms. The projects of Le Corbusier and Gustave Perret, for the Porte Maillot in Paris, both used skyscraper apartments to achieve 'gateways' [Fig. 124]. One of the reasons why people are dis-oriented by Le Corbusier's urban

Fig. 123

Telluride, Colorado



In rugged, scenic Telluride the hills are alive with development.



Paradise in a box canyon.

Pre-fabricated stage set: Disneyworld?.

needs that lie beyond communication and climate control, needs we find hard to articulate.

Clearly something is happening in Telluride. The hills are alive with development, condominiums cropping up all over, shops being re-furbished, a small airport being built to the west of the town. One new development will consist of 1600 residential units, hotels, restaurants, shops, a conference center, sports club, golf course. With the latest in solar technology and covered with earth to conserve energy, all the buildings will be connected to a central *'information utility', a satelite-linked communications network, into which new-age mountain men and women can plug-in their computers, and 'trade on the internationla stock-exchange at three in the morning, if they want to.*

Today, there seems to be a contradiction between the two sources of order;

a. that which is imposed on society by corporate demands
b. that which unfolds as a spontaneous expression of its generic character, exemplified by the community at Telluride.

Out of these there emerges a new hypothesis about the way an environment functions. It is the idea that the traditional notion of the city is no longer valid and that 'information technologies' are becoming more and more a part of architectural expression. The process of growth is a sequence of absorption and regeneration, this gives rise to new associations and forms of expression. The challenge seems to be in allowing for change, one that meets the demands of a society in conflict and transition.

There seems to be an unbridgeable gap today between concept and built form. Once well defined and unified, it is now so shattered that what remains is merely a

collection of fragments. The city today is dynamically different due to its relation to the present. There is as a result, an implicit duality in the nature of the city.

Another way of looking at this is to regard the city as an information processing system, within an information rich environment, one that interacts with its users. The components that determine urbanism, are constantly being changed, so that the traditional notion of th city as a place having physical limits will disappear. Tendencies towards 'cultural entropy', are counter-balanced by more information and diversity. The organising features are less and less quantitative and more qualitative.

In 1927, Mies Van Der Rohe, said:

> "Only intensity of life has intensity of form. Every how is carried by a what. The unformed is not worse than the over-formed. The former is nothing; the latter is mere appearance. Real form pre-supposes real life. But not something that has already existed nor something throughout"

Much of what was said fifty years ago, is still an open question. The answers to this are far too varied, and find different expressions in contemporary society. I would like to suggest that today our interpretation of surrealism has radically changed, as far as it concerns the physical fabric of the city. The information society will be a new type of human society, completely different from industrial society. The term 'information society' will describe in concrete terms the characteristics and the structure of the future. The basis for this is that the production of information values and not material values will be the driving force behind the formation and development of society. Past systems of innovational technology have dealt with material productive power, but the future information society must be built within a completely new framework, with a thorough analysis of the system of computer-communications technology that determines the fundamental nature of the information society.

The prime innovative technology at the core of the development in industrial society was the steam engine, its major function was to substitute for and amplify the physical labour of man. In the information society, 'computer technology' will be innovational technology that will constitute the developmental core, and its fundamental function will be to substitute for and amplify the mental labour of man. There will be a rapid expansion of information of productive power, that will make possible the mass production of cognitive, systematized information technology and knowledge. The information utility consisting of information data banks will replace the factory and become the production distribution center for information goods.

The most advanced stage of the information society will be the high mass knowledge creation society, in which computerization will make it possible for each person to create knowledge. In effect, the city shall never diminish or fade away. It shall continue to be vibrant. Keynes in 1931 said:

> *"Thus for the first time since his creation, man will be faced with his real, his permanent problems, how to use his freedom from pressing economic cares, how to occupy his leisure, which science and compound interest will have won for him, to live wisely and agreeably and well"*

The above is fast becoming a reality today. Naisbitt says that as America switches from an industrial to an information society, people find computers and other high-technologies playing an increasingly important role in their lives. To counter the influence of these impersonal machines, he says "more people are seeking a balance in nature", and looking for places where life is organised at a human and manageable scale. There seems to be an inherent paradox in the above statement. What Naisbitt and other Telluridians are witnessing and encouraging, is the growth of a new kind of small town, a place for people who are tired of urban neuroses, crime, congestion, noise and pollution. They want a quieter, more relaxed community. Despite all the above they also see themselves as *'World Citizens'*.

They can work anywhere, provided they can plug into a computer terminal and a good speedy communictions network. They however cannot without the support of a 'surreal reality', that awaits and connects them to big cities like New York. To combat their isolation, curiously they organised a series of festivals each week. This year Naisbitt added a new event to the list, **'An Ideas Festival'.** The Ideas Festival featured speeches, discussions, art and theatrical presentation on the theme of *'Re-inventing Work'.*

Participants erected a **'Great Wall of Ideas'**, described as a 'community bulletin board for relevant information, partially baked ideas and great notions. They even saw a 'real-time inter-active computer opera', locally hailed as a 'cutting edge event'. The opera itself was called 'an experiment in creating primitive aesthetic intelligence'. The creator of the libretto says "our world will be increasingly full of semi-intelligent machines. It is important to teach them more than dull and war-like activities."

The town, which has a home rule charter, has also created several unusual rules and practices, by which it governs itself. Thus we see the emergence of a new utopia. *The utopia of temporariness, where work, entertainment and domesticity find strange parallels.*

As compared with the complex human order of the city, our present ingenious electronic mechanisms for storing and transmitting information are changing and emerging in new dimensions. In this, there seems to be a rejection of the city in its conventional form. Rapid change and mobility are further transforming society. Despite the fact that there is a danger in routines becoming automated, there is much to be said about situational variations. The realistic approach is to accept this as a process that must become part of our lives.

Important questions are raised on the nature of space and its representation in the 21st century. The Tsukuba Exposition 85, adressed the same issues, but at a smaller scale. The Japanese conceived it as a 'coreless black hole'. At Tsukuba, the blocks are dispersed to the periphery in a representation of the way in which cultural values are diversified and dispersed over the globe. The center is thus eliminated in what is a skillful evocation of the mood of the age of centerless societies and cities. Things happen at the periphery, precisely because the center is missing. Telluride thus becomes the 'periphery', although the center does not dissolve altogether in this case it remains geographically distanced in New York, this being the generic representation of any large city.

In Tsukuba, each block represented a different approach to city design. This can be linked to Koolhaas' conception of New York as the 'City of the Captive Globe'. Where each block becomes a seperate autonomous piece. A similar expression is found in Tschumi's work, the difference being that Tsukuba, Parc La Villette and New York are all structured through an underlying order, dicated by the grid. Telluride, is a departure from the constriction of the grid, it extends beyond determined bounds and limitations into a quaint town in the mountains, creating its own temporary miniature grid, connected to the larger grid through an invisible network.

We can articulate the above into two layers of simultaneous functioning. One is exemplified by *'the frenzy of the city'* , the other by the solitude of the countryside. The result is a curious juxaposition of the idea of work and amusement, in terms of space and place, access to larger communication networks is equally fast, efficient and close at hand. Even at Tsukuba, *the aim was not to produce an ordered plan, as had been done prior to the exposition, but to go beyond the physical architecture*

of the pavillions and to extend to a greater space engulfing both content and operation.

The connecting link to all these variations is the ephemeral quality of the space and work. The visual interpretation of architecture, science and technology, necessitates the importance of structuring thought.

The example of Telluride is a phenomenon, that reverts to the concept of the proverbial get-away. The difference is that one is not simply getting away to mere pastoral serenity, but also to a highly active work situation within the privacy of the home. *This, emerging spatial and temporal fragmentation can be described as the emerging nature of our age, and suggests a re-examination of the meaning of city form.*

Within this framework, architecture develops a new vocabulary. As if almost sensing what was to come, in 1926 the Viennese architect, Frederick Kiesler said;

"I demand the vital building, the space city, the building that is adequate to the elasticity of life function.

a. Transformation of speherical space in cities
b. To set us free, free from the ground, the task of the static axis
c. No walls, no foundations
d. A building system of tensions in free space
e. Creation of new possibilities of living and, through them, needs that will re-structure society.

Motion: will become the new cult.

This will become the timeless ritual of the Future.

CONCLUSION

> *"Thus we may say that the most lasting contribution to the growth of knowledge that a theory can make are the new problems which it raises, so that we are led back to the view of science and of the growth of knowledge as always starting from, and always ending with, problems - problems of an ever-increasing depth, and an ever-increasing fertility in suggesting new problems.... In this way, theories seem to be free creations of our minds, the results of an almost poetic intuition, of an attempt to understand intuitively the laws of nature."*
> *Karl. R. Popper, Conjectures and Refutations.*

The more we progress technologically, the more arbitrary the reality of our physical environment becomes. As for the nature of change in the built environment, much has been brought to the surface and many issues have been raised by this investigation. Since most ideas remain untested and are still isolated incidents that suggest a trend, it is difficult to predict explicitly the implications this will have on the built environment.

One thing can be said for certainty, there is enough evidence to suggest that much of what I have talked about shall be followed through in a positive way. The cluster of technologies described as the 'communications revolution' has resulted in a new condition, called *'The Information Society', which could act as a motivating base for generating hereafter 'an intelligent building', 'inter-active open spaces', and finally 'the intelligent city'.*

The building, as an object, will become more laden with content than ever before. It shall function as a changing/dynamic visual entity, as exemplified by the headquarters of the Arab World Institute by Nouvel, in Paris. Buildings shall deal more with the realm of experience and action/reaction, resulting in an inter-active environment rather than being isolated entities within the larger network of the city. Due to their close proximity to other buildings, visually they shall largerly remain piecemeal, rather than

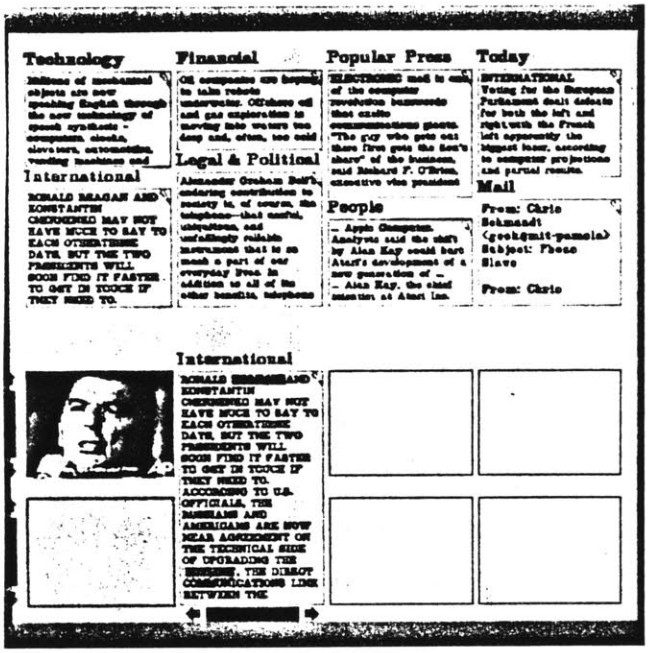
whole. The 'building' will be re-defined as a 'state of energetic spatial fluidity', as anticipated by Zaha Hadid. It will reach the kind of fragmentation described by Libeskind, no longer looking back to trends of the early 1900's. Instead it will re-define itself as the world of *'experiential fragmentation'*.

Renzo Piano's Split building is a good example of this fragmentation. It is physically divided, one half in Genoa, the other in New York. Despite the vast distance, it functions as one entity. *Communication technologies help to bridge this gap, electronic facilities and satellites, by annihilating space and time have caused a change and should be considered as tools towards a re-definition of our existing notions of space and time in architecture.*

In the years to come, one will see an acceleration of this physical fragmentation, where function will not define form, and distance will be unimportant. We will *'technomorphose'* to an intangible dimension dominated by highly efficient systems.

A good example is the work that is being carried out in this direction, here at M.I.T., which carries forward much of what I have discussed earlier. There is an inherent paradox in the architectural scene today. Despite the above mentioned physical fragmentation, which is exemplified not only by Piano's building but also Telluride in Colorado, we seem to be heading towards a common bond of understanding, one that is provided by technologies of information. A new trend emerges and provides unity in diversity. At M.I.T, the term 'Media Technology' is used to mean the information technologies that serve human expression. The field itself is deeply rooted in modern communications, computing, and the social sciences. Computing, and an understanding of human communication processes, are common denominators in this inter-disciplinary merger of formerly seperate units. This is a unique case, where the sum becomes much more than its parts. In this environment there is a bringing together of people,

Fig. 125



Personalized Newspaper: Instant reporting of world news

knowledge and related technologies, extending their scope to activities in the human sciences, giving form to new areas of thought and practice with mutually reinforcing components.

In its simplest form, one can foresee a merger of media arts, architecture, science and technology. This expresses a trend towards an increasing overlap of formerly independent constituencies. In its more complex and forward looking vision it addresses the quality of life in an electronic age. Here, the intellectual knowledge of cybernetics is absorbed into the more accepted disciplines of philosophy, psychology and information sciences.

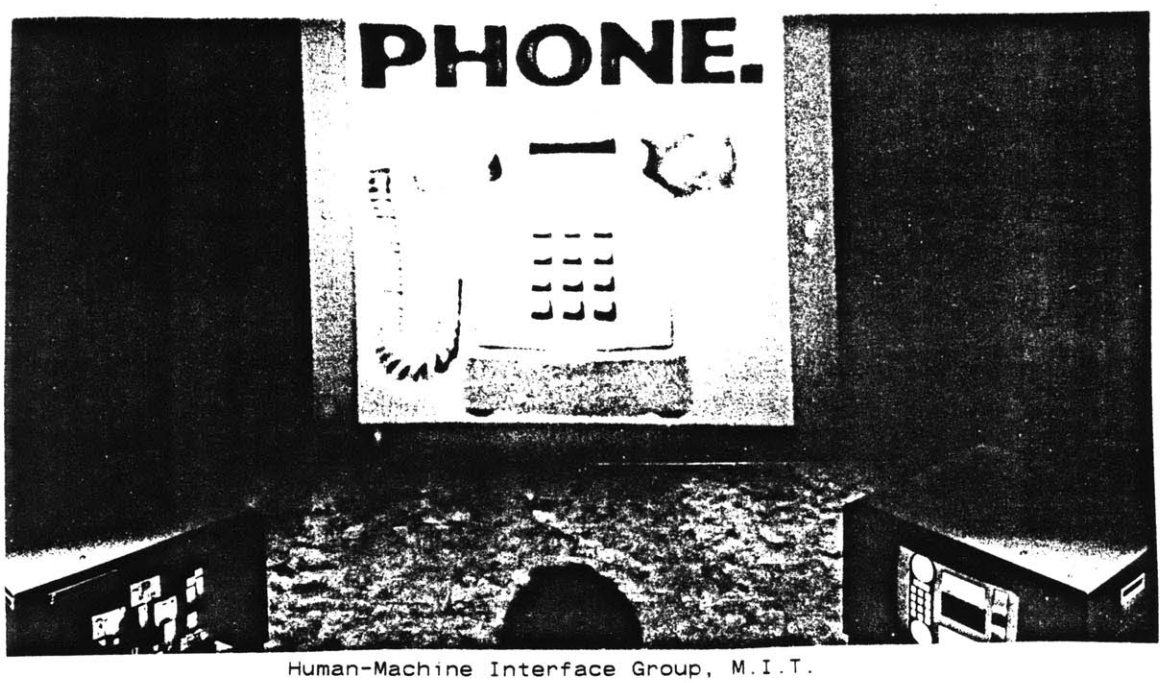
The world is changing to an inter-disciplinary one. Electronic publishing is a branch of knowledge that aids this oncoming change. The fundamental difference however is not from ink to phosphor. It is the change effected by personalization and inter-activity, wherin monologues become conversations. In electronic publishing, the equivalent of the package or the binding is a 'process' not an object.

The work of the group at M.I.T. includes two large-scale efforts: 'personalized newspapers' [Fig. 125] and 'television past broadcast.' The former is an example of an idiosyncratic agent that sifts nightly through the world news to prepare an individualized, full colour morning newspaper, inclusive of non-newsworthy but personally important information of the day. The latter is a similar effort in the video domain, where the computer allows user intervention or automatic editing of continous programming onto a summarizing video cassette. Both projects address a new character of individualization to these primary mass media units. Formerly, the notion of packaging was intrinsic to publishing. Information was expected to be at a level of refinement and plural interest sufficient to justify the publishing effort itself and, in some media, like film, where the sequencing of information is all important, to be

New Channels of Communication

Fig. 127

The Synthetic Performer: Media Laboratory, M.I.T.



Human-Machine Interface Group, M.I.T.

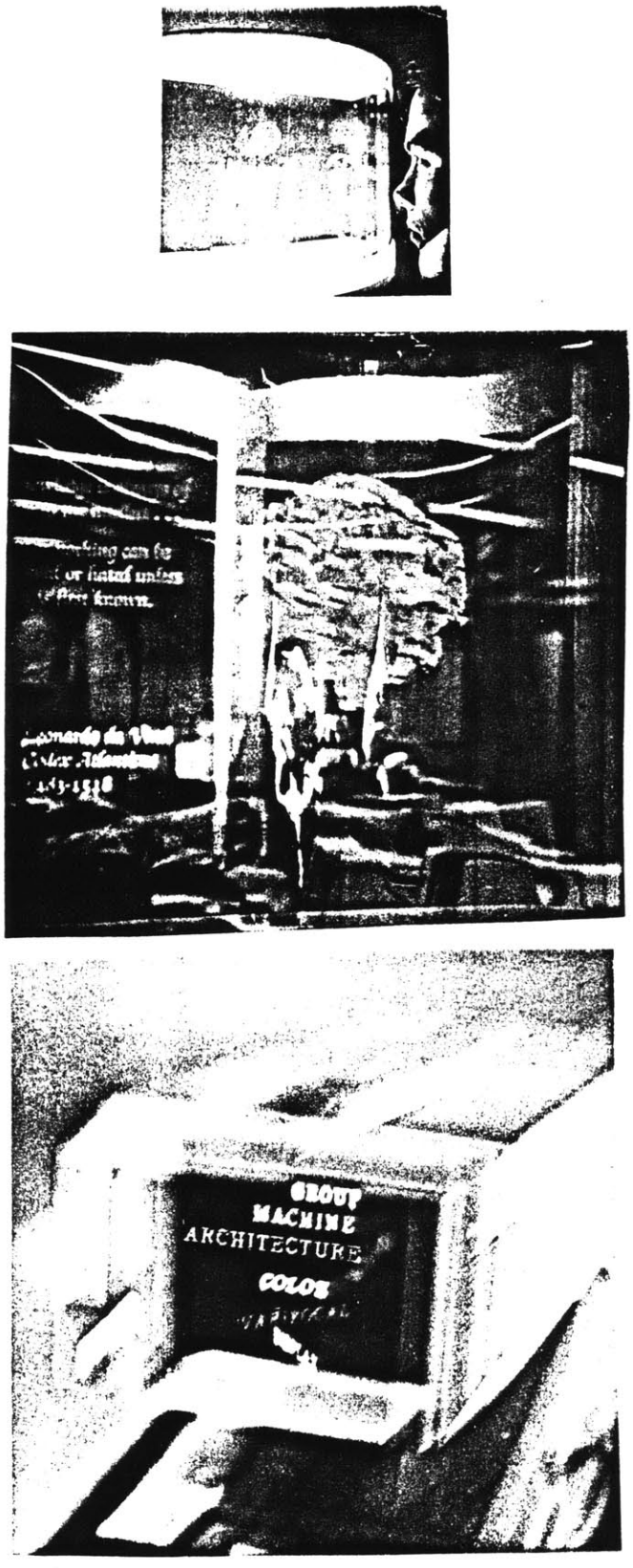
built into the packaging. In electronic publishing these constraints no longer hold. There is a continuum between thinking out loud and delivering polished thoughts. *The flow and exchange of ideas are no longer destined primarily for the bookshelf or library, but are a part of daily life on a global scale. The metaphor of the shrinking world, represents a dimension of 'surreality' defining shape of the future.*

The computer will become an educational technology that people will use for their own personal purposes. M.I.T. can be considered a place where 'one can glimpse and get a tangible feel for the future'. In the field of music in its present state, the synthetic performer needs both audio and optical switch sensing to follow the movements of professional musicians. In the long term, it shall be developed to a level of sophistication where it will be efficient enough to accompany a human partner [Fig. 126–127].

A good example is the area of film. Film historically has been a sequential medium, in which well-formed beginnings, middles and ends are the basic elements of story telling. The videodisc brings motion pictures into a random-access, interactive environment in which *monologues become conversations and viewers can actually place themselves into the plot.* The film of the future will be able to tell us about itself, summarize its contents, and if asked, elaborate on its theme. No longer restricted to a single agenda for display, the medium becomes a potential carrier of knowledge, an intelligent partner in a human exchange.

This world of synthetic simulations can be described as the 'technology of apparition.' The development of super-computers and highly efficient methods for approximating the optical phenomena of holography are offering an entirely new range of research possibilities for this medium. Large scale, multicolour, synthetic 3-D

Fig. 128



Revolutionizing the Visual World of Experimentation

images are beginning to be used to visualize three-dimensional information, shapes and forms, and spatial relationships in architecture, communications and entertainment [Fig. 128]. Architects using the CAD/CAM system will be able to preview part designs without the time and expense of carved models, telephones of the future may become 'super-picturephones' [Fig. 126]. Visions of entertainment in the future can include the promise of 'live' theatre appearing in your own home. Technologies of computer modeling and applied physics together will reach a point where they can make full colour synthetic holograms.

This relates directly to the idea of public open space and its re-defined form expressed by the examples of a park for the twenty first century: Parc La Villette, and the Universal Exposition, both in Paris and described in Part II. Spaces will become more dependent on spatial, temporal and auditory simulations. The responses generated by these will be of great importance and will create a new definition, a state of 'technomorphosis'. Real-time shall be difficult to define. This shall result in an obliteration of both conceptual and physical boundaries.

The Human Machine Interface group at M.I.T. is trying to carry human metaphors into computer communications including the inter-face exotica of sensing gaze, tone of voice, and facial expressions.

The idea of viewing the built environment as a juxtaposition of parallel levels seems to be one that the human being is unconsciously quite used to. Computer usage in the home places the greatest demands on an information system. *Humans are particularly adept parallel processors, in the sense of being capable of attending to concurrent events,* and they do so more at home than anywhere else. One can get dressed, listen to the radio, hear the early-morning noises of a failing

furnace or refrigerator, and watch the snow fall outside the window, all simultaneously. None of these may be demanding of much attention, possibly allowing one to speak at the same time. *Occasionally, we do not even take note of how much we do in parallel and how much we take this ability for granted.*

The second component of the laboratory's telecommunications research is a highly celebrated project in telephony called Phoneslave. The project tackles the problem of automatic telephone answering, message taking, and message passing by using concepts of speaker recognition to identify callers. The result is an uncanny emulation of the behaviour of a human receptionist.

In the case of Telluride the same kind of process is taking shape. There is a simultaneous fragmentation and unity. The resulting effect is coherence, and not conflict. The way these communication technologies work today is piecemeal, quite like fragmented images in a congested city. One can only view one computer screen at a time despite the fact that a world of information is available at hand. Similarly due to congestion and layering, one can only see pieces of the city at one time. *But the viewer is limited to the physical fragmentation of one screen at a time even if he is communicating with Timbucktu or Tokyo.* In the same way our big cities because of their multi-layering and retro-fitting can only be seen in bits and pieces since built form as observed by the human eye will always be fragmented. Similarly open space is heading for a re-defined layering and and super-imposition in a way that tries to achieve a unity and coherence through these invisible and multi-layered systems. The aim is to form a unity through creating unique experiential environments that the five senses can respond to, a rich amalgam of various disciplines.

The art/science of making open space, constructing buildings, and building cities is in a state of 'technomorphia', since the above is dominated and made possible only by the information revolution.

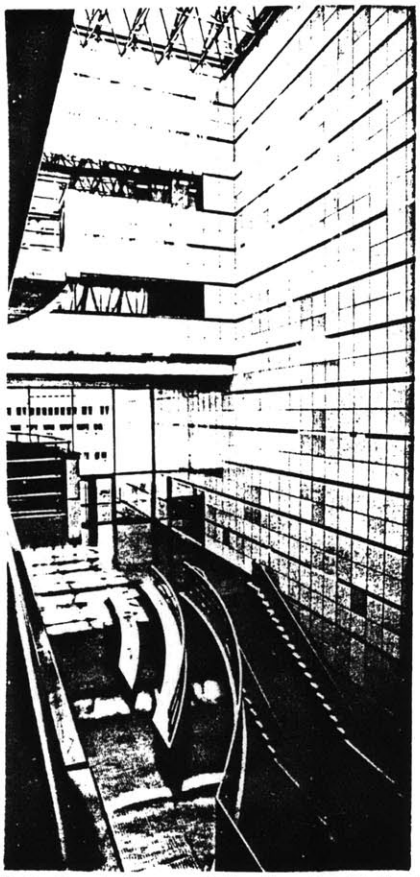
It is my belief that we are progressing forwards and are heading for a world of 'simulations' and 'emulations'. Space and time will in a real sense be totally obliterated, we will enter the age of the intangible and imaginary. This will be the synthesis of fantasy and reality.

The above ideas, trends within these three entities, are heading towards an era of ephemeral juxtapositions, an idea I introduced at the beggining of this investigation. Defined beginnings and ends will be a thing of the past, we will be working on a twenty four hour basis. Since time, space, work, home and entertainment will all blend into each other, we will enter a world full of options.

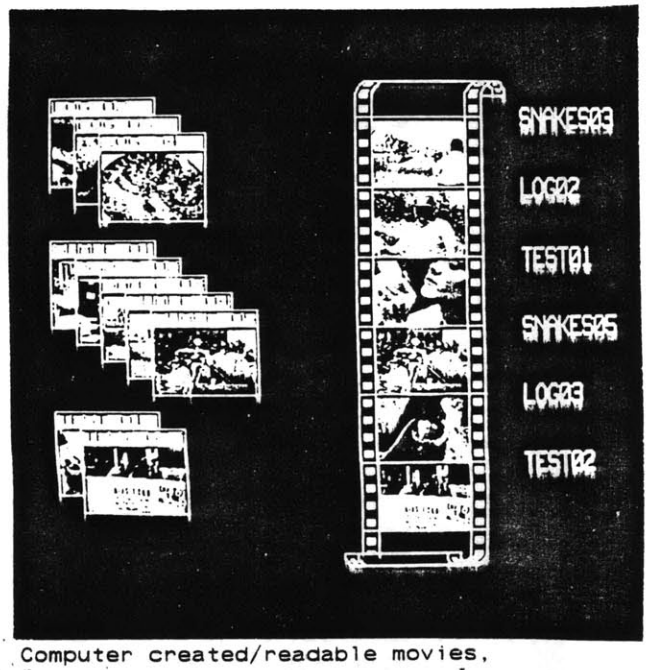
Drama without Actors At M.I.T. the Media Laboratory's Computer Graphics and Animation Group is pursuing three approaches, all in the area of computer animation, *to redefine the nature of the computer as a medium for visualizing virtual worlds.* 'Computers and entertainment' is the newest group in the Media Laboratory. Their work includes simulation of theatrical perfomances to such a degree that drama can be scripted and enacted without actors, through computer-generated imagery and speech, in full versimilitude of the live stage.

Through use of such simulation, the writer directs as well as writes and need not wait for a rendition of the script to modify it. Possibilities include developing electronic fascimiles of theatrical or motion picture productions complete with animated lifelike characters, voice, costuming, scenery, and lighting. Simulation would also offer the capability of electronically generating stand-alone entertainment products which have

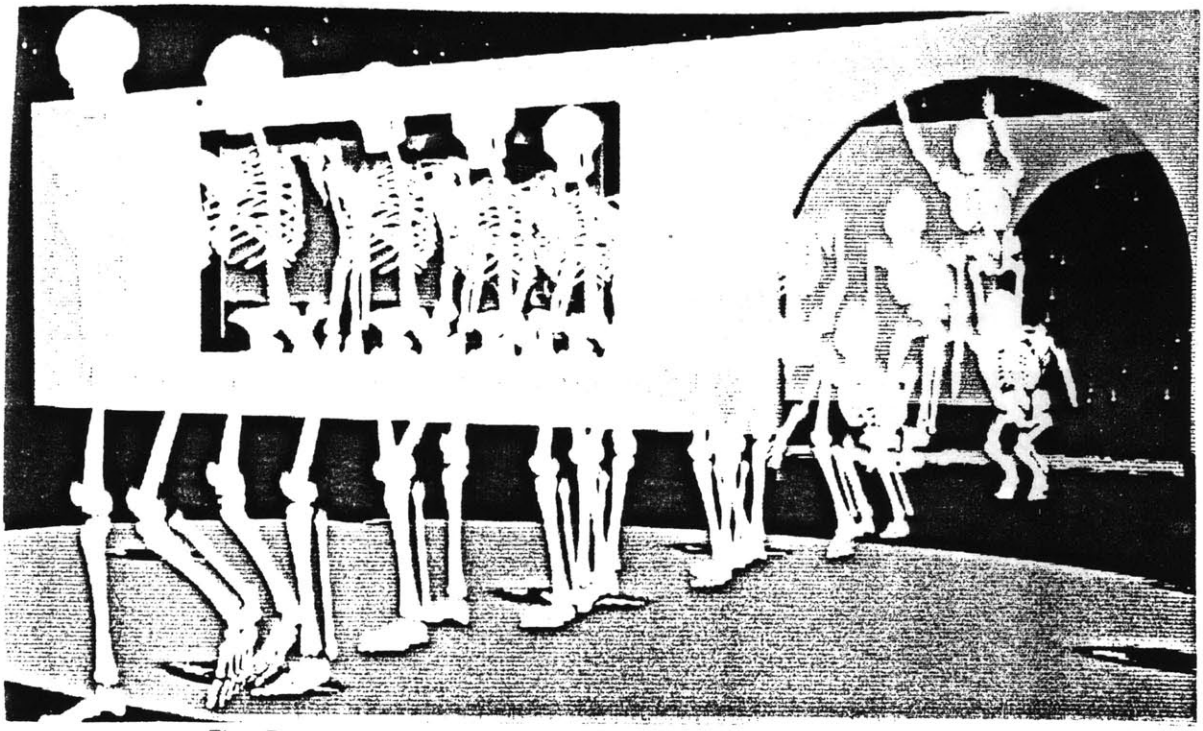
Fig. 129



M.I.T. Arts and Media Building

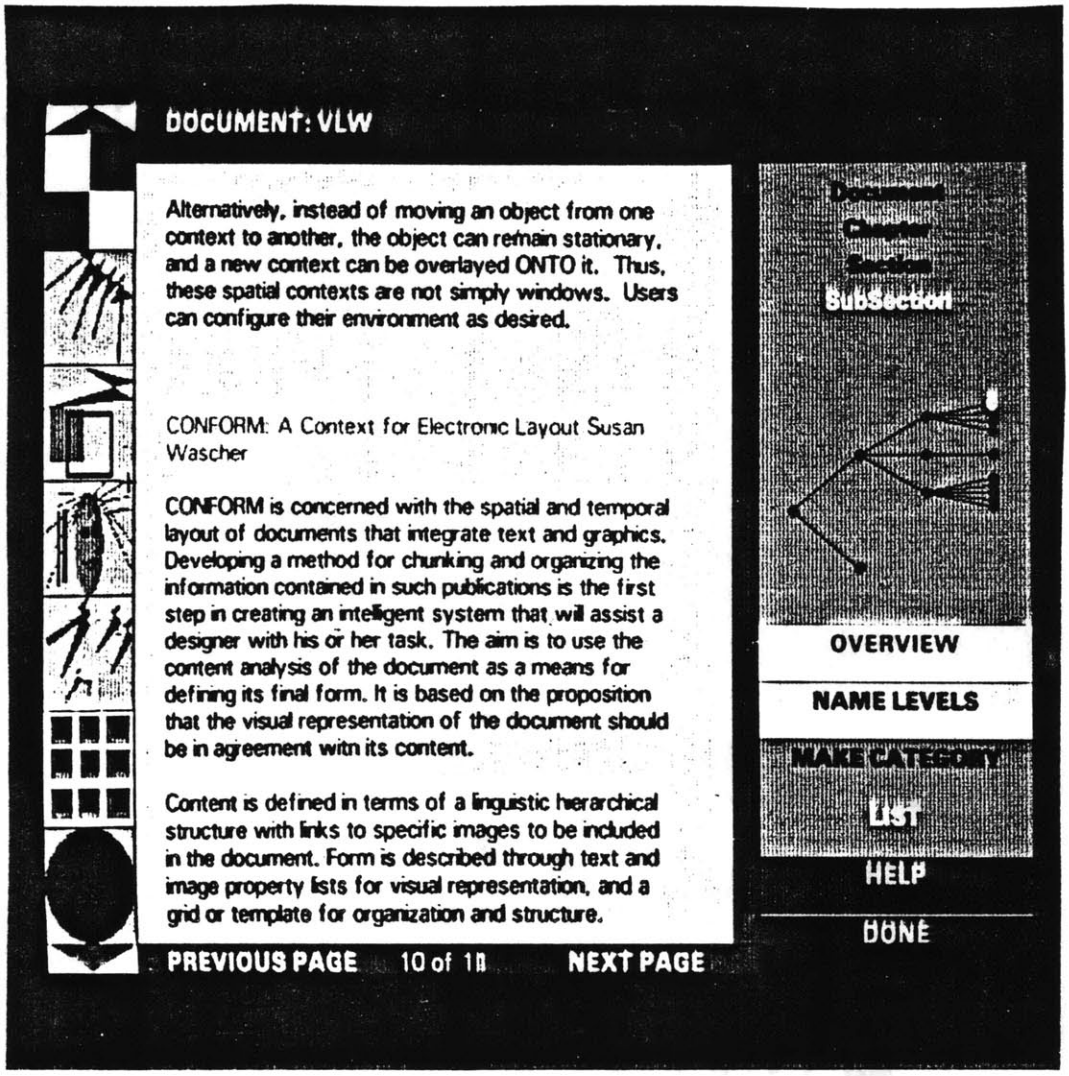


Computer created/readable movies, the 5th generation??.



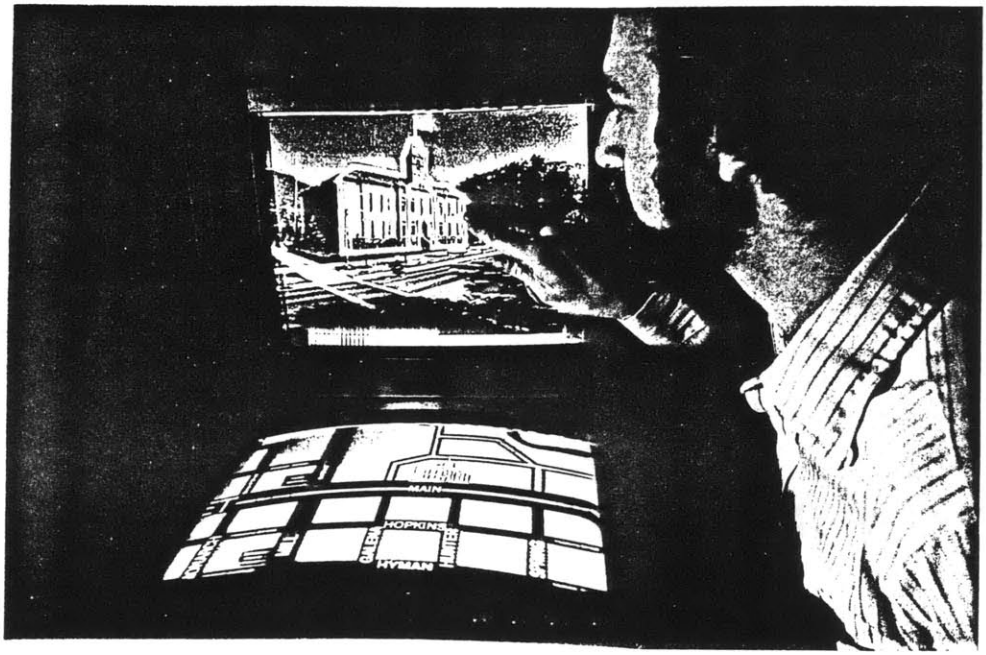
The Technology of Apparition: Spatial Imaging Group, M.I.T

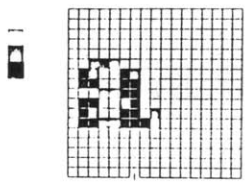
Fig. 130



Simulating Environments: A screen at a time

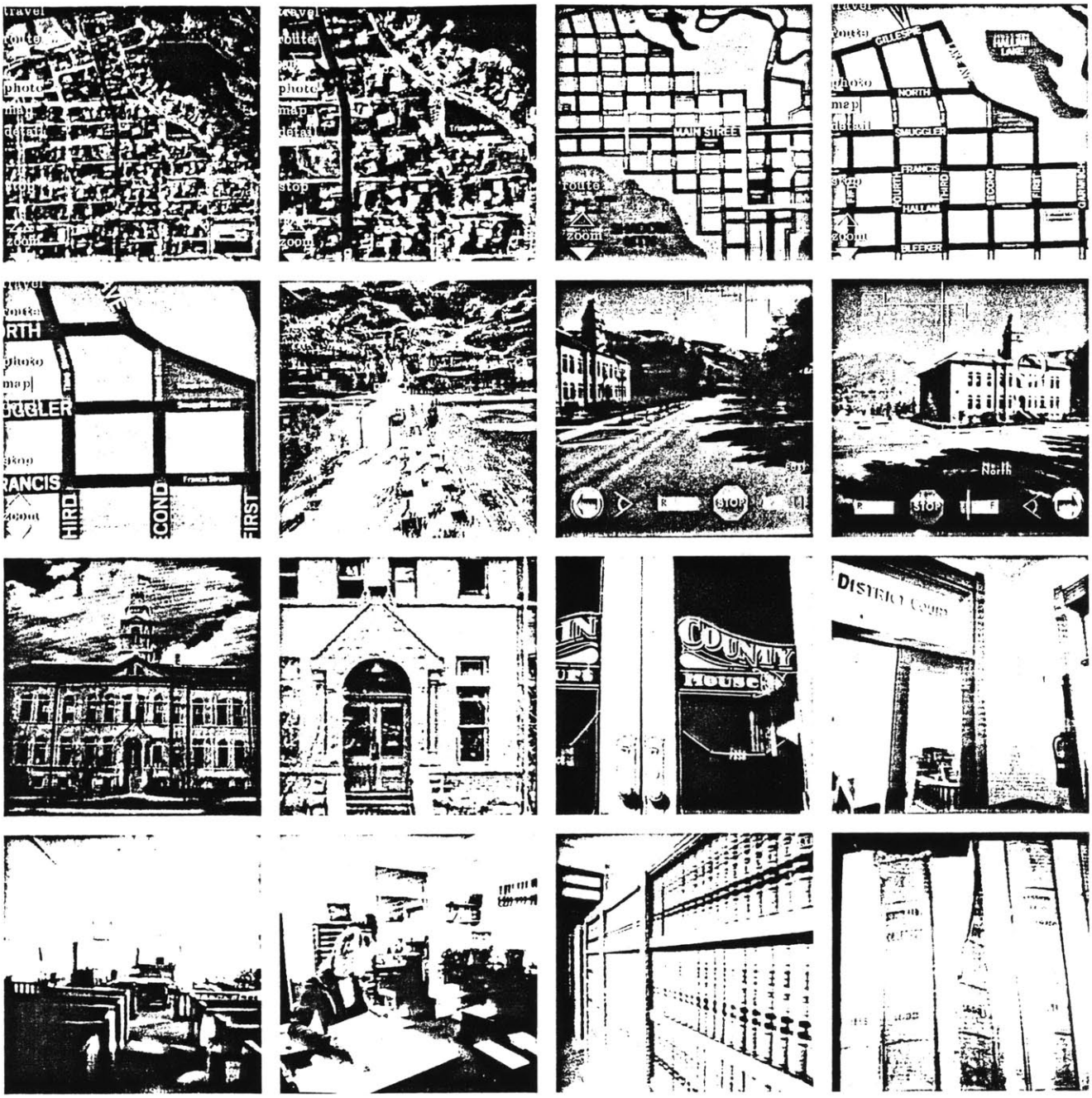
Fig. 131





a

Simulting the Environment



Aspen, Colorado: simulating design at M.I.T.

Fig. 132

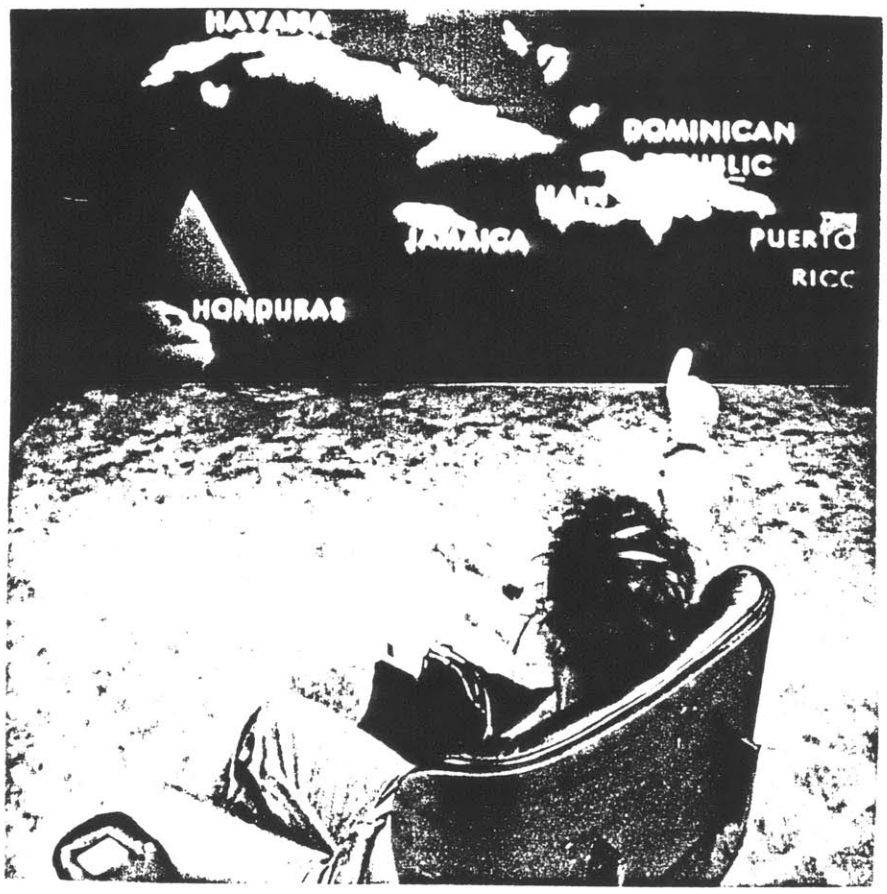
audience appeal in their own right, as well as contributing to creativity by facilitating low-cost, online electronic realization of artistic choices and options. Significant benefits both to creativity and the cost aspects of performance are possible by-products of this research area [Fig. 129].

Artistic choices and options will thus be *available through a host of simulation systems tht would offer access to shaping and moulding the environment.* [*Figs. 130-132*]. I believe that technology is not here to take over from man, I am optimistic about its use and appliction. It can only help in aiding us as a tool that is faster and more efficient although not brighter than the human mind. The machine will never reach the analytical intelligence capacity of man. **If it takes over and makes man a slave it will not be due to the intelligence of the machine, but due to the fault of its creator, man himself.**

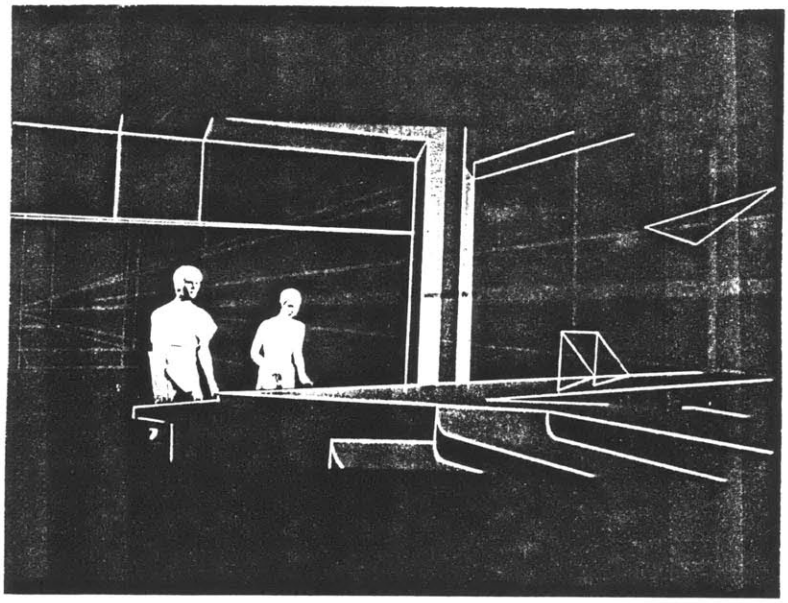
The reality of the situation is at the moment complex and ambigous, one that requires critical choices over time. Ultimately technology must not dictate choices to us in our cities, we must learn to select modes of action from among the possibilities it presents, in physical planning.

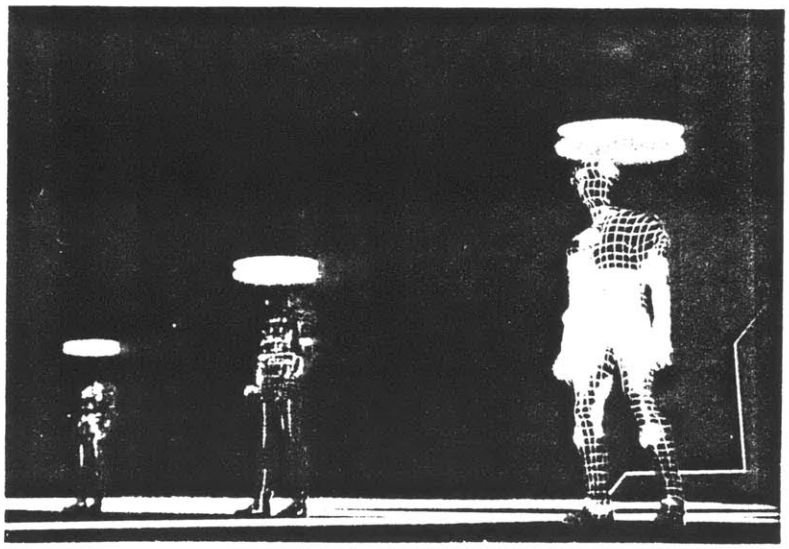
A realistic approach to assessing the future must acknowledge the potential for transformations of thought and image. There is a changed mental attitude towards the artifacts of the physical world. There is a new sensibility based on the fundamental displacement of man, it represents what Foucault would specify as a 'new episteme', ie: nostalgia for the past, and toward a hypothesized future.

The 'fragmentation of perspectives', increasingly found in society is reflected in the subject of communications itself. The information society will demand a new standard of literacy. We must learn to cope with a culture of great diversity and contradictory

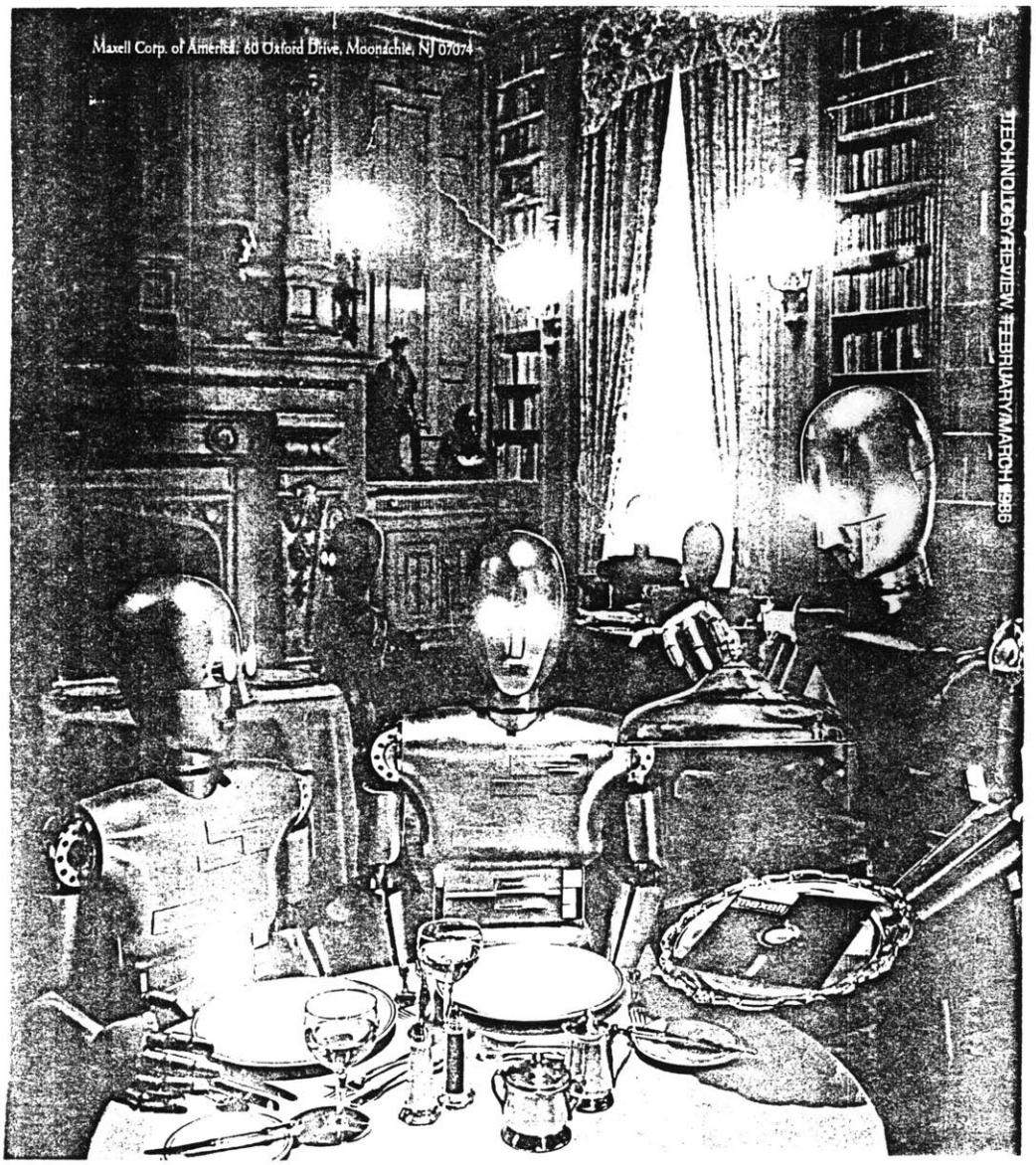


Annihilating 'time and space'

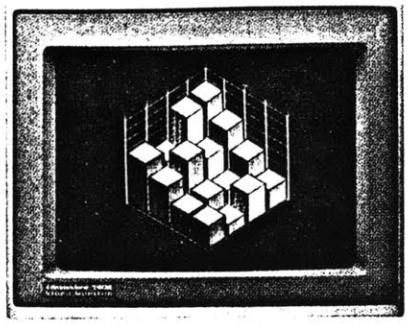




From the film 'Tron', computer-generated setting

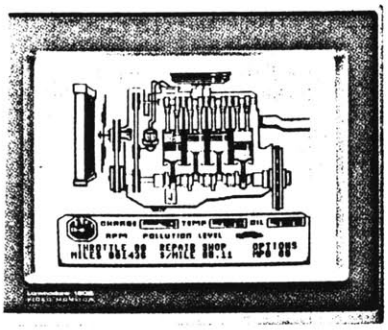

Maxell Corp. of America, 60 Oxford Drive, Moonachie, NJ 07074
TECHNOLOGY REVIEW, FEBRUARY/MARCH 1986

All you need to do this

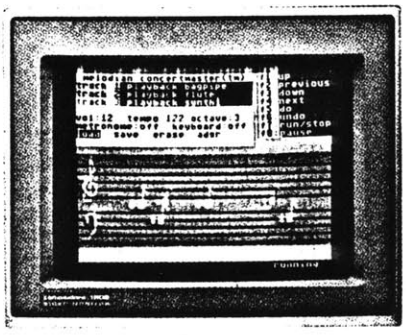


graph a spreadsheet

write a novel



fix an engine

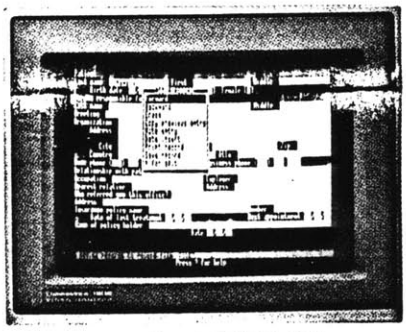


compose a song

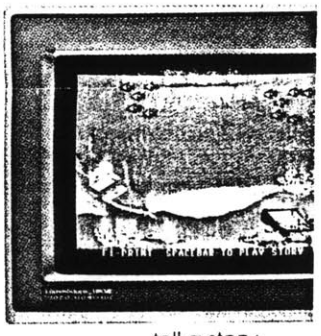
paint a picture

ng

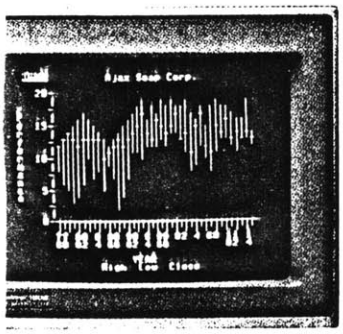
learn to fly



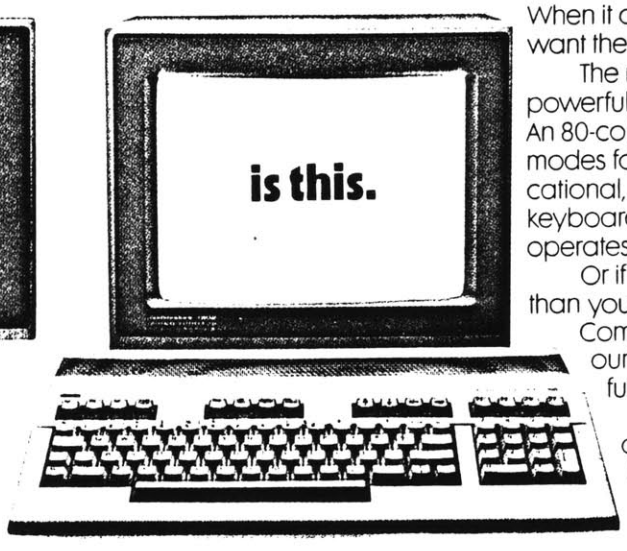
organize a data base



tell a story



forecast sales



When it comes to personal computers, you want the smartest, at a price that makes sense.

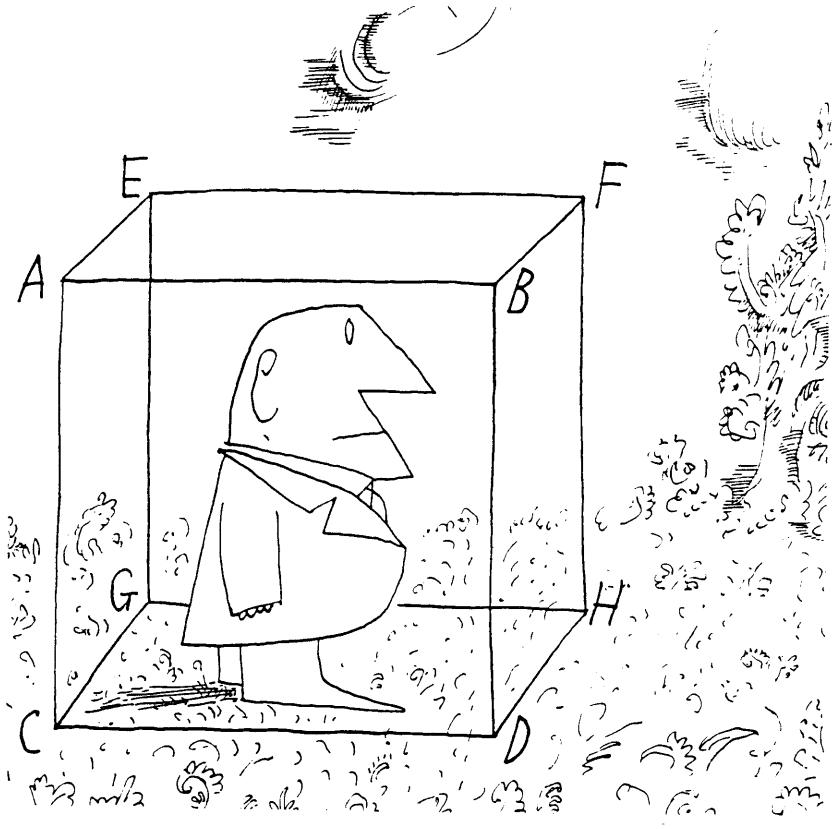
The new Commodore 128™ system has a powerful 128K memory, expandable by 512K. An 80-column display and 64, 128 and CP/M® modes for easy access to thousands of educational, business and home programs. And a keyboard, with built-in numeric keypad, that operates with little effort.

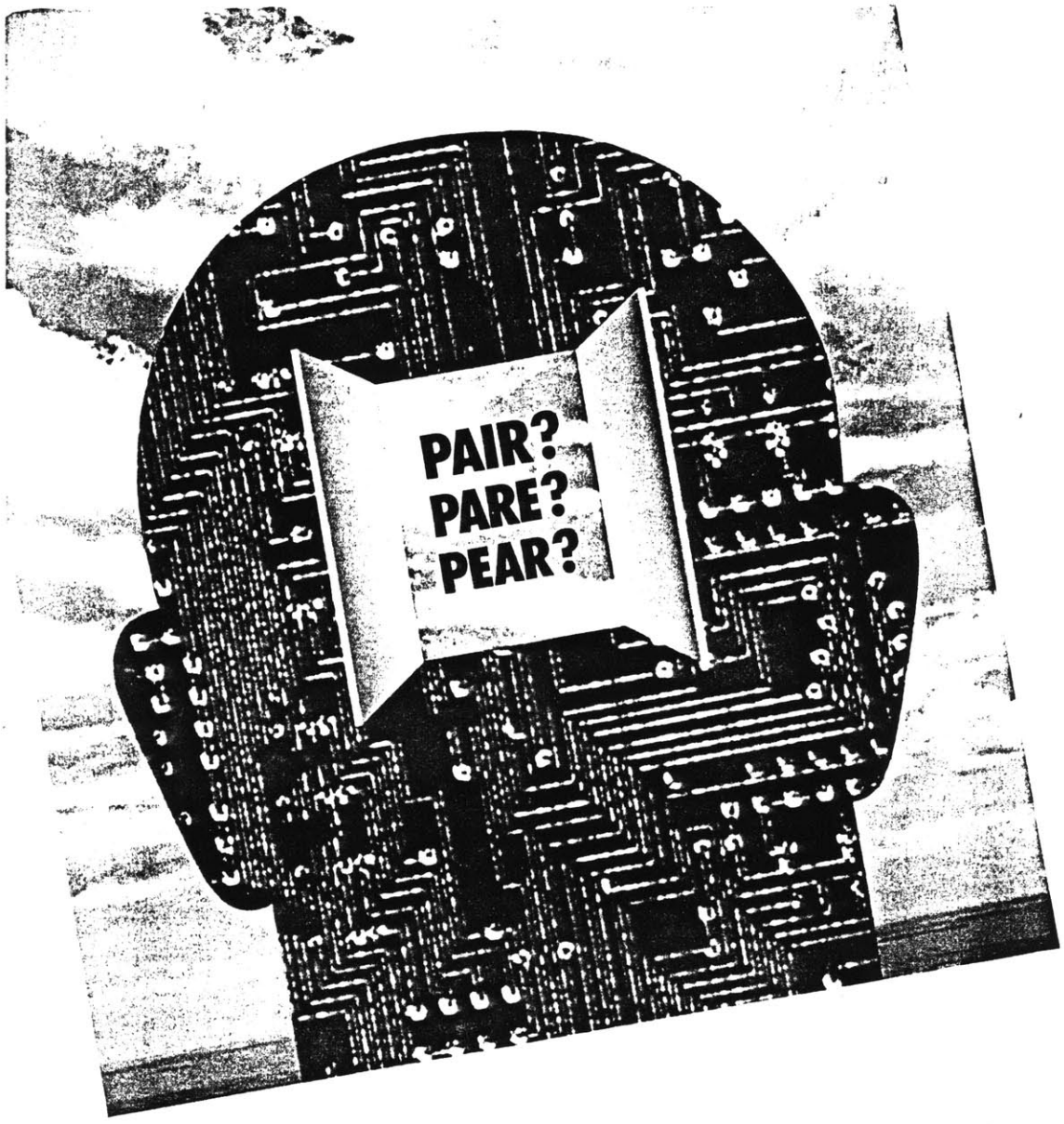
Or if the Commodore 128 is more machine than you had in mind, you can pick up the Commodore 64.® The Commodore 64 is our lower-priced model geared to more fundamental, basic needs.

Discover personal computers that do more for you. At prices you've been waiting for. From the company that sells more personal computers than IBM® or Apple.®

COMMODORE 128 AND 64™ PERSONAL COMPUTERS

A Higher Intelligence


E
F
A
B
G
H
C
D


PAIR?
PARE?
PEAR?

images. This new literacy will require the ability to seek out the difference between knowledge and mere information.

As a result of the above, the state of the art, in the 'built environment', can be termed as 'a surrealistic representation of the world in conflict'. One cannot predict the impact of this revolution on the quality of architectural work, simply on a knowledge of its technical features. Much depends on *'why and how it is used'*.

BIBLIOGRAPHY

Amis, Kingsley. New Maps of Hell, a Survey of Science Fiction.
Victor Gollancz, London, 1960.
Harcourt, Brace and World, N.Y., 1960.

Apollonio, Umbrio. Futurist Manifestos.
Thames and Hudson Ltd. London, 1973

Armytage, W.H.G. Yesterday's Tomorrow.
Routelidge and Kegan Paul, London, 1976.

Banham, Reyner. Megastructure.
Thames and Hudson, London, 1976.

Banham, Reyner. The Greek Gizmos.
Industrial Design, September 1965.

Barlow and Alex. Fredrick Law Olmstead's New York.
Praeger Publishers Inc., 1972

Bell, Daniel. Toward the Year 2000: Work in Progress.
Daedalus, Academy of Arts and Sciences, Boston, Summer 1967.

Bell, Daniel. 12 Modes of Prediction. A Preliminary Sorting of Approaches in the Social Sciences.
Daedalus, Summer 1964.

Blowers, Andren. The Future of Cities.
The Open University Press, 1974.

Branzi, Andrea. The Hot House.
M.I.T Press, 1984.

Brzezenski,Z. America in the Technotronic Age.
Encounter, January 1968.

Calder, Nigel. The World in 1984. 2 vols.
Penguin Books, Hammondsworth, England, 1965.

Chipp, Herschell. B. Theories of Modern Art.
University of California Press, Ltd, 1968.

Clark, Kenneth. Landscape Intro Art.
Beacon Press, Boston, 1963.

Clarke, Arthur. Profiles of the Future.
Victor Golancz, London, 1962.

Cook, Peter. Archigram.
Praeger Publishers, New York.

Cook, Peter. Archigram 1-9.
London, 1969.

Cook, Peter. Architecture: Action and Plan.
Studio Vista, London, 1967.
Reinhold, New York, 1967.

Cook Peter. Exerimental Architecture.
Universe Books, New York, 1970.

Coomaraswamy, Ananda. K. Art and Thought.
London, Luzac, 1947.

Dahinden, Justus. Urban Structures for the Future.

De Casseres, Benjamin. Mirrors of New York.

Doxiadas, C. A. Architecture in Transition.
Hutchinson and Co, London, 1963.
Oxford University Press, New York, 1968.

Dostoevsky. The Demons.

Eco, Umberto., and Zorzoli,G.B. A Pictorial History of Inventions.
Wiederfield and Nicholson, London, 1962.
Macmillan and Co., New York, 1963.

Ellul, Jacques. The Technological Society.
Jonathan Cape, London,1965.
Knopf, New York, 1964.

Ferris, Hugh. Power in Buildings. An Artist's View of Contemporary Architecture.

Ferris, Hugh. Life and Work.
Architectural Review, England (vol. 58).

Ferris, Hugh. Architectural Visions 1929.

Ferris, HUgh. The Metropolis of Tomorrow.

Forester, Tom. The Microelectronics Revolution.
M.I.T Press, Cambridge, 1985.

Forester, Tom. The Information Technology Revolution.
M.I.T Press, Cambridge, 1985.

Foster, Norman. A Tower for Louisville.
Rizolli, New York, 1982.

Foucault, Michel. The Order of Things.
Pantheon Books, Random House Inc, 1970.

Foucault, Michel. This is not a Pipe.
University of California Press Ltd., 1983.

Frampton, Kenneth. Idea as Model.
Rizzoli, International Publications, 1981.

Frampton, Kenneth. Modern Architecture, A Critical History.
Oxford University Press, New York, 1980.

Frampton, Kenneth. Modern Architecture and the Critical Present.
London Architectural Design Profile, St Martin's Press, 1982.

Frampton, Kenneth. A New Wave of Japanese Architecture.
New York Institute for Architecture and Urban Studies, 1978.

Frampton, Kenneth. Rob Kriev Urban Projects,1968-72
Rizzoli International Publications, 1982.

Frampton, Kenneth. Tadaq Ando; Buildings, Projects, Writings.
Rizzoli, New York, 1984.

Gabor, Dennis. Inventing the Future.
Secker and Warburg, London, 1963.
Alfred. A. Knopf, New York, 1964.

Giedeion, Sigfried. Mechanisation takes Command.
1948.

Glinzberg, Eli. Technology and Social Change.
Columbia University Press, New York, 1964.

Goltmann, Jean. Megalopolis.
The Twentieth Century Fund, New York, 1961.

Gorky, Maxim. Boredom.

Gresty, Hilary. Constructivism in Poland 1923 to 1936.
Lavenham Press, Suffolk.

Hilberseimer, L. Contemporary Architecture.
Paul Theobald and Co., 1964.

Jellicoe, Jeffrey. Susan. The Landscape of Man.
Thames and Hudson Ltd. London, 1975.

Jewkes, J. et al. The Sources of Invention.
Macmillan and Co., London, 1958
St Martin's Press, New York, 1958.

Jungk, Robert.,and Galtung, Johann. Mankind 2000.
Allen and Unwin, London, 1969.
Universitet Foilaget, 1969.

Koestler, Arthur. The Act of Creation.
Hutchinson, London, 1964.
Macmillan and CO., New York, 1964.

Kubler, George. The Shape of Time.
Yale University Press, New Haven, 1962.

Kahn, Herman. Year 2000.
Macmillan and Company, London, 1967.

Libeskind, Daniel. Chamber Works (Architectural Meditations on Themes from Heraclitus.)
Architectural Associations, London, 1963.

Marek, Kurt. Yestermorrow: Notes on Man's Progress.
Andre Deutsch, London, 1961.
Alfred. A. Knopf, New York, 1961.

McHale, John. '2000' and Architectural Design.
London, 1967.

McHale, John. The Future of the Future.
Brazilier, New York, 1969.

Morison, Eltrin. Men, Machines and Modern Times.
M.I.T Press, Cambridge, 1966.

Mumford, Lewis. Technics and Civilisation.
Harcourt, Brace and World Inc., New York, 1963.

Mumford, Lewis. Technics and Human Development.
Pantheon Books, 1962.

Mumford, Lewis. The Transformations of Man.
Harper and Brothers Publishers, New York, 1956.

Negroponte, Nicholas. The Architecture Machine.
M.I.T Press, Cambridge, 1970.

Peary, Danny. Screen Flights, Screen Fantasies.
Doubleday and Company Inc., N.Y., 1984.

Popper, Karl. R. Conjectures and Refutations.
Routeledge and Kegan Paul, London, 1963.
Basic Books, New York, 1963.

Rabinoiv, Paul. The Foucault Reader.
Random House Inc., 1984.

Ragon, Michel. La Cite de l'an 2000
Horizon 2000.

Richards, Brian. New Movement in Cities.
Studio Vista, London, 1966.
Reinhold, New York, 1966.

Rossi, Alto. A Scientific Autobiography.
M.I.T. Press, Cambridge MA 1981.

Rudenstine, Angelica. Russian Avant-Garde Art
Harry. N. Abrams, N.Y. 1981.

Safdie, Moshe. Form and Purpose.
Aspen, Colorado, 1980.

Santayana, George. The Sense of Beauty.
Random House Inc. 1955.

Scruton, Roger. The Aesthetics of Architecture.
Princeton University Press, 1979.

Stevens, Mary. Mcnulty, Thomas. World of Variation.
George Brazilier, N.Y., 1970.

Tashjian, Dickram. Skyscraper Primitives.
Wesleyan University Press, 1975.

Tisdell, Caroline. Bozzola, Angelo. Futurism.
Thames and Hudson Ltd., London, 1977.

Toffler, Alvin. Future Shock
Random House Inc., 1970.

Tschumi, Bernard. The Manhattan Transcripts.
St. Martins Press, N.Y., 1982.

Ulrich, Conrads. Programs and Manifestoes on 20th Century Architecture.
M.I.T. Press, 1970.

Wiener, ANthony. J. Year 2000.
Macmillan & Co., 1967.

Zhadova, Larissa. A. Mlevich.
Thames and Hudson Ltd., London, 1982.

Journals:

Architectural Association Files. Spring, 1985.

Architectural Association Files. May, 1984.

Architectural Design. July-Dec. 1984

Architectural Design. 7/8, 1983.

Architectural Design. June, 1980.

Architectural Design. April, 1981.

Architectural Desing. Jan–June, 1978.

Architectural Design. September, 1983.

Architectural Design. January, 1981.

Architectural Design. Jan–June, 1981.

Architecture, Movement, Conitinuite'. May, 1983.

Architecture, Movement, Continuite'. December, 1984.

Boston Globe Magazine. November, 1985.

Casabella. 1983

Architecture, Movement, Continuite'. October, 1983.

L'Architecture d'Aujourd Hui. Architectures Differentes. Sept. 1983.

L'Architecture d'Aujourd Hui. Habitat et Urbanite. April, 1982.

L'Architecture d'Aujourd Hui. Technologies. October, 1982.

L'Architecture d'Aurjourd Hui. Metamorphoses. June 1984.

L'Architecture d'Aujourd Hui. Jean Nouvel. February, 1984.

L'Architecture d'Aujourd Hui. Renzo Piano. February, 1982.

L'Architecture d'Aujourd Hui. OMA. April, 1985.

L'Architecture d'Aujourd Hui. L'Architecture de la Ville. February, 1980.

M.I.T. Media Laboratory Brochure. Daniels Printing Company, 1986.

Progressive Architecture. July, 1983.

OZ. Volume 7., 1985.