GRAPHIC IMAGES: VISUAL INTERVENTION WITHIN THE ARCHITECTURAL ENVIRONMENT

A THESIS
SUBMITTED TO THE DEPARTMENT OF
GRAPHIC DESIGN
AND THE INSTITUTE OF FINE ARTS
OF BILKENT UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF FINE ARTS.

By
Faik Koray ÖZGEN
February, 1993

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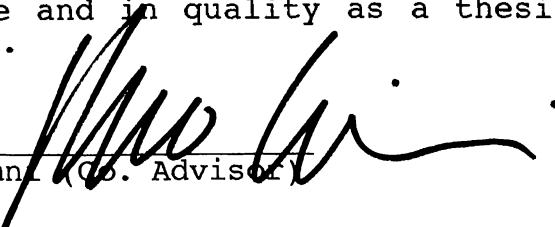
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Assoc. Prof. Erdag Aksel (Principal Advisor)

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality as a thesis for degree of Master of Fine Arts.

Pippo Lionni (Co. Advisor)

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality as a thesis for degree of Master of Fine Arts.

Prof. Dr. Mustafa Pultar

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Dr. Nezih Erdogan

Approved by the Institute of Fine Arts.

Prof. Dr. Bülent Özgüç, Director of the Institute of Fine Arts.

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ABSTRACT

GRAPHIC IMAGES: VISUAL INTERVENTION
WITHIN THE ARCHITECTURAL ENVIRONMENT.

Faik Koray ÖZGEN

M.F.A. in Graphical Arts

Supervisor : Assoc. Prof. Erdag AKSEL

February, 1993

The intention of this study is to analyze the role of visual
communication systems made up of graphic images within the
human-space communication framework. The information content of
the man-made environment is examined and the effects of graphic
images in human-space communication are discussed by illustrated
examples. A research is carried on how information is
translated into a visual form through examination of steps from
conceptualization to juxtaposition of graphic images in space,
and how they are perceived and understood. Finally,
considerations on how visual communication systems interrelate
with the architectural environment to generate messages for
identification of particular characteristics of that space.

Key Words: Graphic Image, Graphic Communication, Visual
communication Systems in Architecture.

ÖZET

GRAFİK İMGE:
MİMARİ ÇEVREYE GÖRSEL MÜDAHALE

Faik Koray ÖZGEN
Grafik Tasarım Bölümü
Yüksek Lisans
Tez Yöneticisi: Erdağ Aksel
Şubat, 1993

Bu çalışmanın amacı grafik imgelerle oluşturulan görsel iletişim sistemlerinin insan-çevre iletişimi açısından rollerini incelemektedir. İnsan yapısı çevrenin içerdiği bilgi incelenmiş ve bu çevrede yer alan grafik imgelerin içerikleri ve işlevleri görsel örneklerle tartışılmıştır. Bu imgelerin mimari çevreye katılması, kavramsal olarak ortaya çıkışlarından başlayarak üretilip mekandaki düzenlemelerine kadar olan süreç ana hatları ile incelenmiştir. Son olarak görsel imgelerin mimari çevreyle olan ilişkilerinden doğan ve insan (kullanıcı) tarafından algılanan belirgin/özgün bir görsel çevre karakterinin varlığı tartışılmıştır.

Anahtar Sözcükler: Grafik İmge, Grafik İletişim, Mimari Çevrede Görsel İletişim Sistemleri

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1. INTRODUCTION

Urban life takes place in man-made environments such as housing complexes, commercial centres, underground transportation systems, and industrial buildings. The quality of human life in these environments is dependent on an individual's comprehension of them. Human beings acquire access to knowledge and goods in the environmental framework through information, in an attempt to attain a certain quality of life.

To avoid alienation between human beings and urban space within the complex structure of the built environment, graphic communication systems have taken on a greater role. It is precisely this visual mode of communication which takes priority, since our capacity for gaining information through the visual sense is noticeably larger than that of other senses. This system of visual communication provides a language made up of graphic images (pictures, maps, signs, symbols etc.) intended to intervene as an informative layer on the architectural environment.

Within the framework of this study, graphic images are visual entities which are essential as a language for understanding and living in urban space. In turn they also transmit functional messages in the artificial environment where collective amenities are possible.

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Environmental information arranged into visual forms through colour, shapes or movements enables us to recognize and evaluate the character of an environment. Humans and the artificial environment are the two originators producing messages in the broader context of the natural environment.

The individual is considered to be a receiver or 'interpreter' of messages produced by the originators, based on his/her needs, expectations, and demands. Messages are the content of communication which are conveyed from humans and the artificial environment to receiver as a stimulus in the form of architectural objects, activities, behaviors and so on.

Consequently, through the interpretation of these visual messages, humans (users) perceive an identity through the quality and condition, and its nature, property and composition in order to appropriate an environment for themselves. In other words, once they grasp the elements of an environment, they are able to profit from knowledge or goods and gain a certain quality of life and social interaction.

In the context of the architectural environment, graphic images are one of the components (message originators) of human-space communication where all the components reinforce each other in a comprehensive communication system.

The aim of this study is to investigate the communicative role of graphic images within the architectural environment, and to analyze how information is translated into visual messages made up of graphic images.

We will begin by looking at how visual experience affects our movement in space. We will then look at how architecture conveys messages through its visible appearance and how the interpretation of these messages offers some means of understanding the environment. Following this we will examine the influence of visual information on our knowledge of urban spaces. These are the elements which make up the information content of the architectural environment producing the message. We will explain how graphic images may function within different architectural environments, illustrating their relationships to other elements in space through visual examples.

In the third and fourth chapters, the discussion will centre on how graphic messages are produced and integrated into the artificial environment, thus creating communication media. This intervention will be examined as the process of conceptualization and its translation into a visual form. Characteristics of graphic images will be analyzed according to their functions in visual communication.

Through the parameters of legibility, meaning, and memorability, we will take a look at how the communication of the message to the user creates identity, and

consequently fulfills both a utilitarian and a social function.

2. INFORMATION CONTENT OF THE MAN-MADE ENVIRONMENT

2.1. VISUAL EXPERIENCE

Humans perceive their environment and gather information through their five senses : touch, taste, smell, sound, vision. In the context of social and personal perception of space, humans, because of their different cultural backgrounds "inhabit different sensory worlds" (Hall,1966,2). They interpret their sensory data differently and combine them differently, as they interact with their living and non-living environment.

Cultural differences in humans lead to individual selective sensory processes. These processes admit certain elements as information while filtering out others. When two people are subject to the same experience in their environment, this experience is perceived differently through a set of culturally patterned sensory screens.

> The architectural and urban environments that people create are expressions of this filtering-screening process. In fact, from these man-altered environments, it is possible to learn how different peoples use their senses. (Hall, 1966,2)

Environmental information is received through a human's receptors in different quantities. Culture-based evolution of these receptors modifies the capacity of each receptor,

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and this, in turn, affects the quality and quantity of information conveyed to the mind.

If human senses are compared to each other according to their information capacities, vision was the last and most specialized sense to be developed in man throughout his cultural evolution. (Hall,1966) As the information capacity of vision is noticeably larger than that of the other senses,in many cases it takes priority over the others. "The great virtue of vision is that it is not only a highly articulate medium, but that universe offers inexhaustibly rich information about the objects and events of the outer world." (Arnheim,1969,18) Far more information is fed to the nervous system through the eyes and at a much greater rate than through other senses. The eyes enable humans to identify the physical states of many materials at a distance and to gather information about their environment. Hearing and smell are also distance senses. But, in fact, here, the information must be organized into certain forms and articulation in order to be effective at a distance.

Humans naturally interact and move through space. In doing this, they depend on the messages received from their body to balance their visual world. In order to get contact with the real world humans should be able to integrate their visual experience with the kinesthetic experience which is derived from bodily movements.

In addition to their perceptive capabilities, their cognitive and mental abilities enable humans to collect,

organize, store, recall and manipulate information about the spatial environment. In other words "man learns while he sees and what he learns influences what he sees" (Hall,1966,66). This adaptability in humans enable them to put to advantage their past experiences.

2.2. ARCHITECTURE AS COMMUNICATION

We expect our character of everyday life and its environmental framework to be 'accessible'. In other words, to approach the elements of the environmental framework or be able to profit from knowledge, goods and services in order to have a certain quality of life and social interaction. Hence, we need to obtain information about the places we live in.

In the act of using architecture we have to pick up information from the environment in general and from the architectural elements and the space contained in particular. (Passini,1984) Consequently, environmental information has to be interpreted. The interpretations of this offer some means for the better understanding of environment.

Human occupants or inhabitants are also taken as informative elements within the architectural environment, because they constitute visual messages through their spatial relation, their body movements, gestures and so on. They form the subject of the communication process whilst using the architectural environment.

The following statements of Umberto Eco will enable us to make an overview of how conventions are developed in the context of human-architecture communication. Here, the term architecture has been used by Eco in a broad sense, indicating phenomena of industrial design and urban design as well as phenomena of architecture proper. These statements illustrate how the considerations of phenomenological relationships between human beings and architecture indicate that human beings commonly experience architecture as 'communication', even while recognizing its functionality. This consideration was explained by Eco through the example of hypothetical man-environment relationships.

'Man' is Stone Age man, and his shelter is a cave or a hole on the side of a mountain. Through instinct and reasoning he takes shelter, perhaps to avoid cold or rain. When he is sheltered, he examines the cave that shelters him, by daylight or by the light of fire inside. He notes the amplitude of this covered space, and understands this as the limit between safe, sheltered space and outside space with its rain, wind or natural elements (enemies). The difference between the outside space and the inside space evokes in him some nostalgia for the place and fills him with the feeling of being protected. Once the rain or wind is over, he might leave the cave and reconsider it from outside. From here, he would note the entry-way as a hole that permits him to go inside, and this entrance would recall the image of the inside. So, all entrance holes, ceilings overhead, continuous walls of rock surrounding a space would recall to him the image of the

inside space. Because of this, 'the idea of cave' takes shape as a designed device to assist his memory, thus enabling him to think of the cave later on as a possible shelter in case of rain. It also enables him to recognize another cave for the same possible objective. The second time, the idea of the first cave is replaced by the idea of cave, a model, a type, something that does not exist concretely, but on the basis of which he can recognize a certain context of phenomena as 'cave'.

As the model functions then he can recognize someone else's cave or even a cave he does not intend to make use of. It can be concluded that, now, man is aware of the fact that the cave can take on various appearances. But this depends on his realization of an abstract model. In a sense the model is codified on the level of this individual. At this point he would be able to communicate the model of the cave to other man, by means of graphic images. It shows that this cave example, as a principle can be an 'object' of communication between man and architecture. At this point the drawing of a cave, or the image of a cave in the distance, may become the communication of a possible function, and it remains, even when there is neither fulfillment of the function nor a wish to fulfill it (1980,13). Here, the importance of the cave image and the representation of the cave entrance, can emphasize that communication in complex environments is dependent on corresponding the real image, that we see without any other mediator, with the related information. Eco concludes his beliefs in the social context. Hence, the model mentioned above can also be seen on the social

level. Here, any artifact can be taken as an example that allows and promotes a function. It communicates the function to be satisfied. (1980,14) For example, if someone uses a map to find his way, society will note this, and it subsequently becomes a social convention.

Taking communication as stimulation, and asking the question whether architecture presents stimuli, brings up the discussion of conventional values as information. It is better to point out the relationship between stimulus and response through presenting another of Eco's examples.

For example, a staircase acts on its user as a compelling stimulus. When someone is faced with a staircase, he has to raise his feet one after the other. The staircase stimulates someone to go up or to go down. There are, on the other hand, two factors that cannot be ignored here, concerning the fact that in all probability someone would be going up the staircase on the basis of the knowledge that this is what stairs are for. Firstly, he learns to go up by having experienced doing so at some time in the past. So, if he only responds to the stimulus alone, he might fail to activate the expected response. Secondly, once he has learned that the staircase stimulates him to go up and permits him to pass from one level to another, he recognizes in a staircase the stimulus presented, and the possibility that is offered, a fulfillment of a function (Eco,1980).

So from the moment a staircase is recognized by the user and included within the general concept of 'staircase',

any staircase communicates to the user the function it offers. It communicates this to such an extent that from different types of stairs the user can discriminate which one is relatively easy or difficult to go up.

2.3. VISUAL IMAGES IN ARCHITECTURAL ENVIRONMENT

It has been seen in the previous section that architecture, with its own visible language, promotes how it functions, and signifies a way of social interaction through its usage by humans. If we extend this to a level of urban life, we see that man-made systems of visual communication are playing a role in making our built environment more 'accessible'.
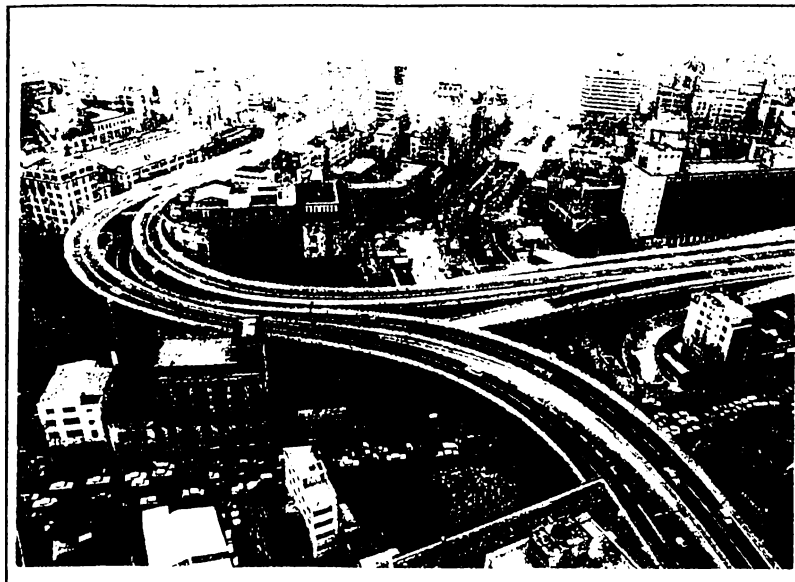

Fig.1 Aerial view of an urban complex.

In urban life, population growth and technological advances have lead humans to construct and live in diverse and complex built environments. Taking the cave/man

example as a reference point, these urban spaces are still defined by their walls, doors, windows and so forth. But we have become increasingly dependent on the visual communication system which is placed as a layer on the architectural structure. In the past it was only a "sign board" ("Inn") placed on Old English inns. We now have an incredible diversity of man-made visual images at our disposal. At both the exterior and the interior of buildings, they intervene, and help users to identify space. They inform users and prepare them for future actions in everyday life.

Fig.2 An underground station

Even in the most comprehensible environments, full of traditional and well-established architectural style, there is a need for 'hard information'. Visible entities such as streets need names so that we can refer to them, and we also need help to find our way through complex buildings. Additionally, there is the need for information

which is put up for reasons of restraints or obligations.
(Kinneir,1980)
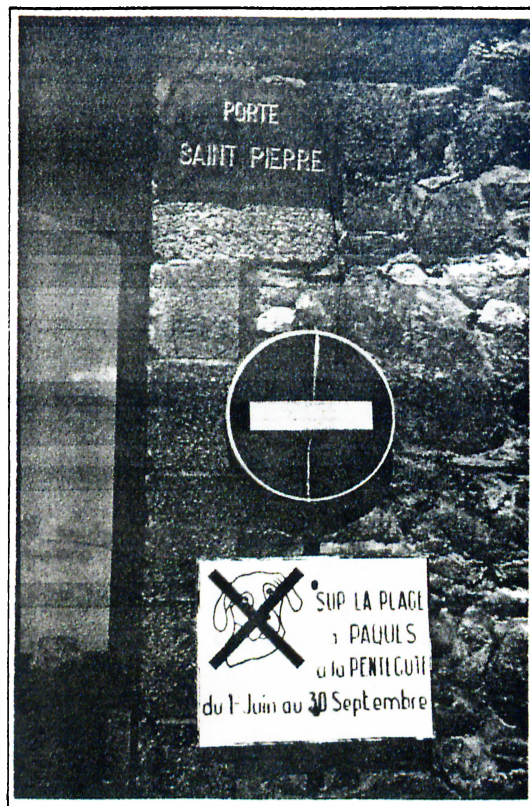
Fig.3 Street information.

Visual communication systems express the sets of possible
intentions such as guidance, indication and caution in
order to use buildings efficiently and find our way. They
also give information about occupants and their
activities. But the role of this visual communication
system is becoming more extensive because of complex and
diverse human needs. As new products and services are
introduced, their integration in our environments
necessitates giving information about their functions.
Sometimes, access to these products and services, because
of their 'abstract' nature may only be possible through
images representing their existence in architectural
space.
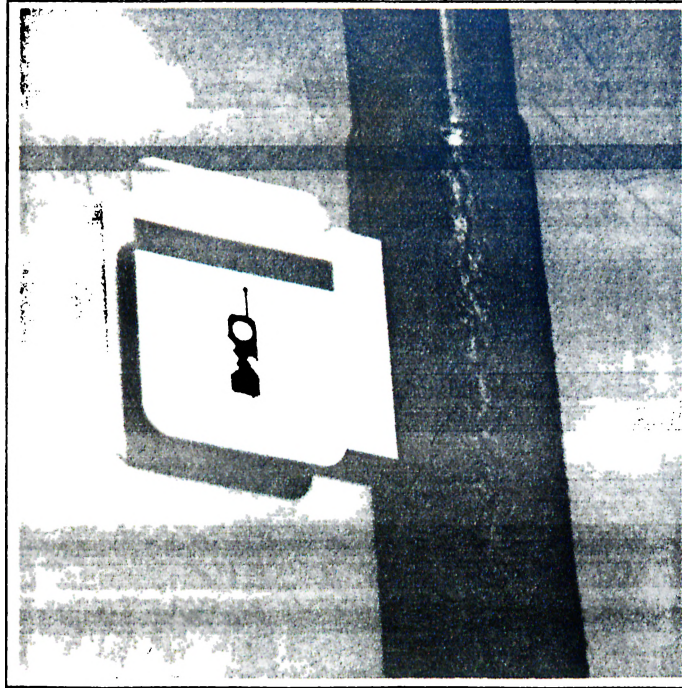
Fig.4 Visual sign indicating cordless telephone
(invisible) communication zone.

When architecture presents a lack of visible cues because
of its spatial characteristics, it becomes difficult to
obtain information on what architectural space contains.
Thus, there is a need for complementary information
through graphic images. In using complex buildings, as a
result of spatial uniformity and less expressive elements
of architecture, environmental information can be
ambiguous or incomplete, requiring a particular effort of
interpretation.

Fig.5 An underground car park without graphic
information..

Even if the information is obtained and the message is
understood, it may be forgotten partly or completely when
it needs to be reused after a certain time. Therefore, we
refer to visual communication systems.
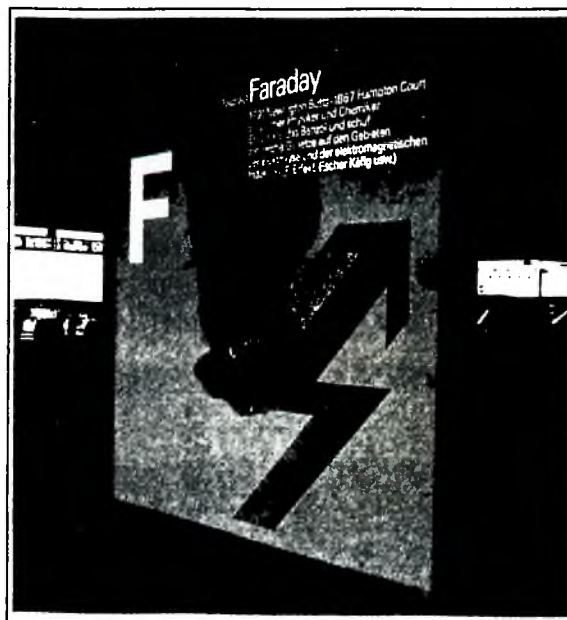
Fig.6 Alphabetical theme used in identification of floors
in a multi-layered car park, Zurich.

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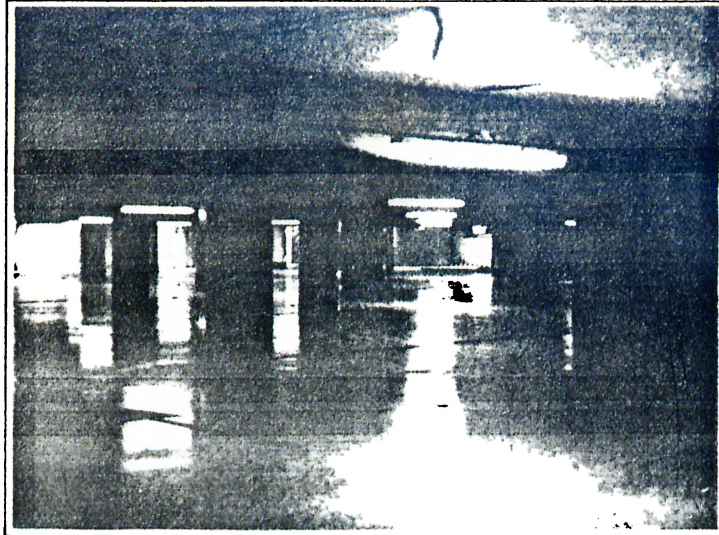Graphic images communicate environmental information translated into a visual language such as signs and maps. But we also have to obtain information from the architectural and spatial characteristics of settings in order to relate this graphic information to the perceived environment.
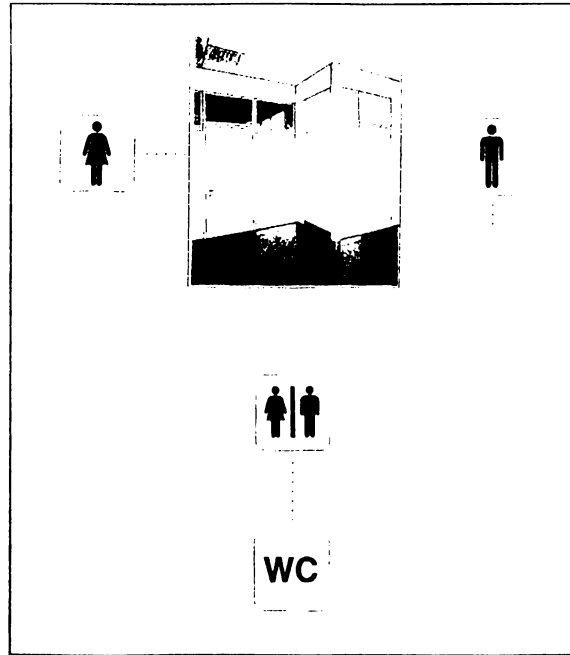
Fig.7 Model, showing a simple structure of information from general (toilets) to specific (man-woman)

The complexity of the environment and the mobility of people require information to be structured and extended in space to direct and orient users. This is made up of pieces of interdependent information in a definite pattern of organization relying on the spatial characteristics of an architectural environment, and presents a hierarchical change in information content from general to specific. In other words, the closer you get to your target, the more specific the information you are presented with. The information given to users becomes even more complex

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within 'labyrinthine' buildings where the repetition of uniform elements is disorienting.

Some architectural elements, although fulfilling similar functions, may have different relationships with specific users and architectural spaces. Hence, the graphic images (giving information on their location or function) may vary in content. This brings up different ways of displaying information depending on the characteristics of these elements. In order to see how graphic images differ, we may consider stairs, escalators and elevators as examples. These are functional elements in buildings allowing humans to ascend or descend from one level to another. In general, the graphic images may give locational or directional information to users but they must also convey more specific information. Before the invention of mechanical systems the sign indicating a stair was monofunctional. Now it serves to discriminate a staircase from the mechanical alternatives. Our behaviour with relation to staircases is innate, but an encounter with an escalator presents a new set of problems.
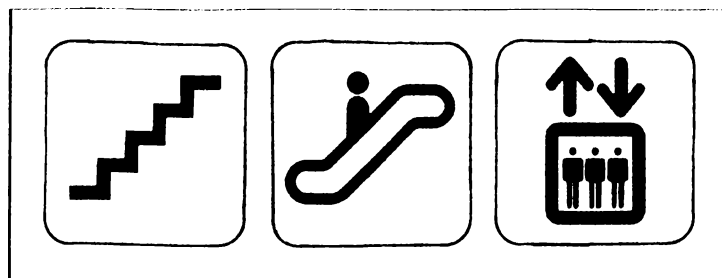
Fig.8 Graphic images designating different means of ascending or descending.

Escalators are power driven and automated. The movement of the steps will tell us the direction of travel but supplementary information (how to use) information is necessary. Manufacturers and statutory authorities, therefore, use graphic images to inform us how to use escalators safely.
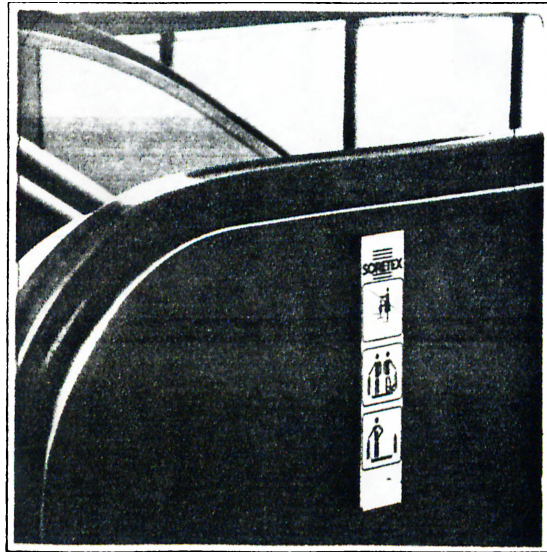
Fig.9 Instructions on an escalator.

Doors may be taken as elements that are most frequently used in built environments. The perceived and actual properties of a door conveys functional messages to the user about how they could be used. In daily life, it is understood that a door is a means of access, of entrance or exit. Although someone may think that a simple thing, like a door, does not need any explanation, they often accompanied by graphic images. The door furniture may convey a subliminal message. We will pull a handle, and push a push plate. This is often considered insufficient guidance and consequently complimentary information, through graphic images, is given.

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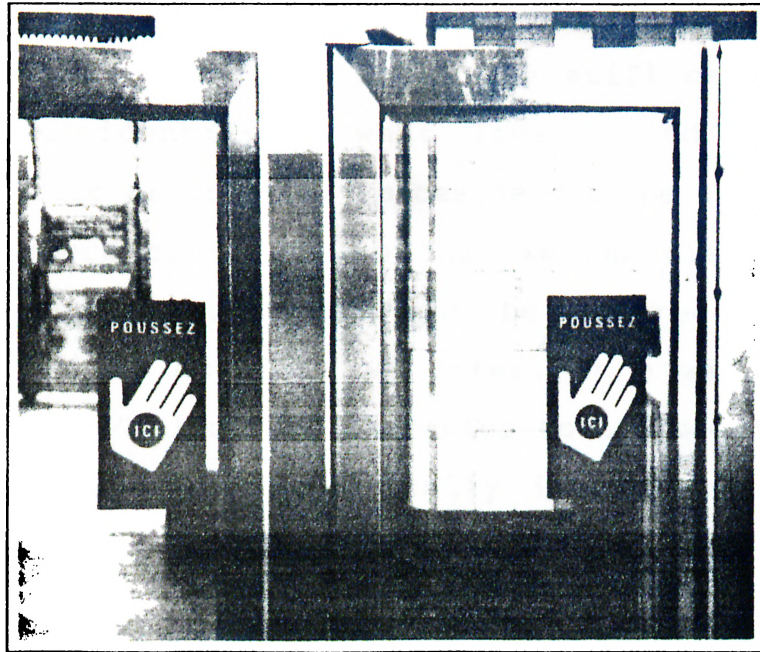
Fig.10 Push signs on doors.
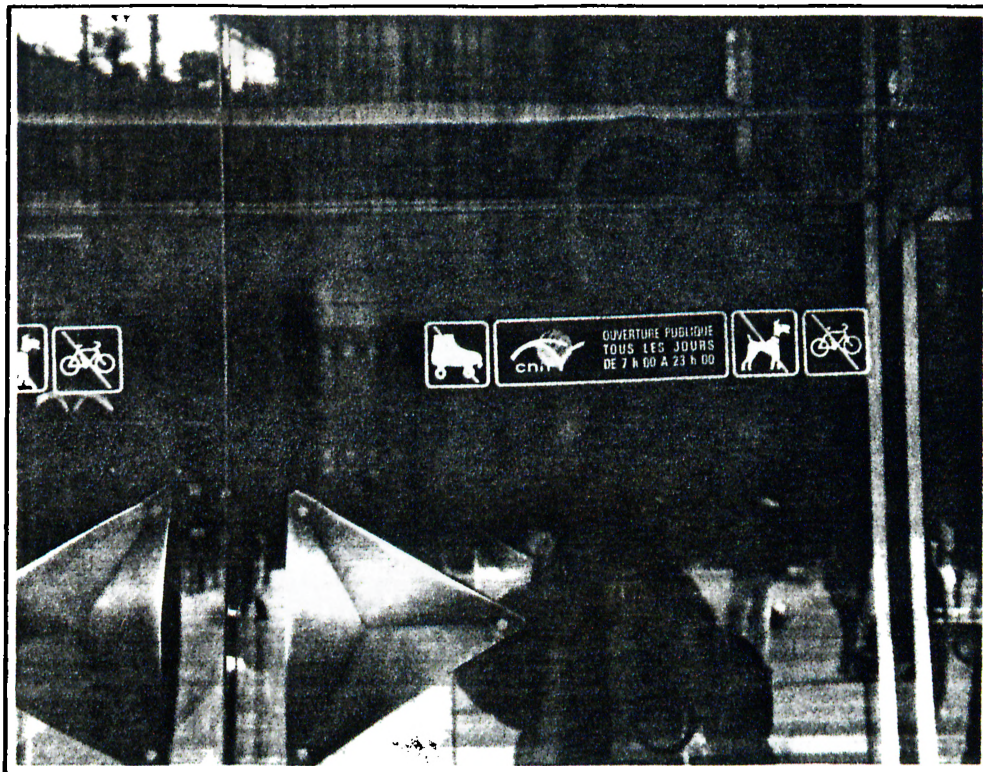
Fig.11 Entrance door carrying different graphic images.

Automated doors can eliminate complimentary information such as 'pull' and 'push', but may still carry visual information identifying what lies behind the door. Whether public or private, spaces need to be nominated by names, numbers or images so that we can distinguish a particular space from others and be prepared for how we are supposed to act when we enter. In a way, graphic images give a 'selective' character to the door that the information thereon symbolically invites or excludes people.

Furnishings which are used in architectural environments may also carry graphic images denoting their basic functions. Objects such as coffee machines and litter bins can be identified by their three dimensional design.Sometimes graphic image can state the obvious.
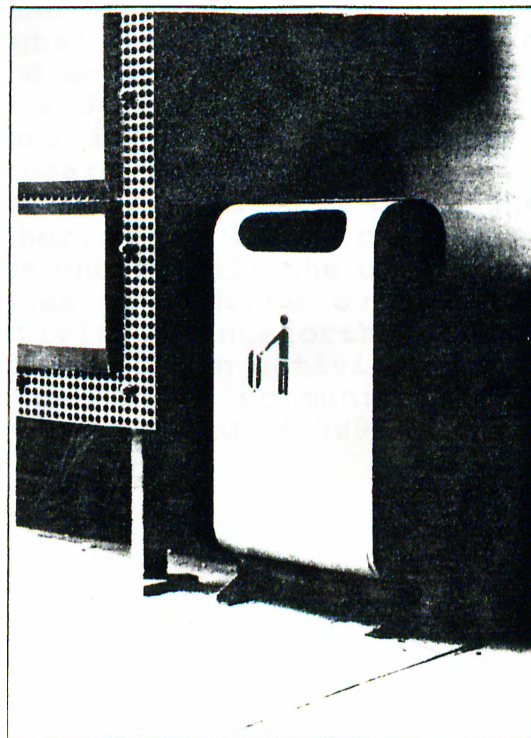
Fig.12 Litter bin with an image describing its function.

Moles, describes everyday life as the "web of days" which plays a greater part in the quality of life. It would no longer be the residue, but the main part, because it is what fills the life, it is the field of the person's autonomy. Then the environmental framework gains importance as an essential aspect of everyday life. Consequently, Moles summarizes the relationship between the environment and man in the everyday life context:

> Environment has a material side (recognition of the universal elements of daily life: doors, stairs, street, and so forth) and a side of 'signs', symbolic element shapes (arrows, shingles, posters, signals, and so forth) which are there to represent things or actions. These can be qualified as graphic in the sense that they constitute an entire large 'integrated diagram' within the framework of our life and translate the elements of that life into a sort of intelligible discourse. The door, the arrow, the corporate identity, the logotype, the traffic sign, is only the appearance, privileged and standardized, of a 'knowledge through signs' of the world of things, products, and actions. Our existence becomes more and more symbolic because it is lived more and more inside an ideographic world where we prepare our actions not with the objects themselves, but with the signs that designate them. That is correlated with a social change wherein all the communicational activity takes precedence over the purely material activity. Henceforth, the greater percentage of all human activity will result from participation in communication in the broad sense of the world. (1989,121)

3. FROM CONCEPT TO VISUAL FORM: MESSAGE PRODUCTION FOR COMMUNICATION

At this point, we will have a look at how a message is put into a visual form by means of graphic images and is juxtaposed in space. This graphic communication may help us as a language for understanding the space which we experience. Its development of this into a language of visual forms requires a methodological process. This process can be divided into consequential steps:

> i- Supplying the relevant information appertaining to the environment, the interactions of people and objects within it, and taking into account its current state, functions, history and socio-cultural condition.

> ii- With this overview, exploring the ideas which express these interactions. These are the ideas for translating environmental information into a visual form.

> iii- Defining the concept and translating of this concept through transforming the information into visual message form using different media and techniques of visual treatment.

iv- Arranging spatially these messages in the environment.

3.1. EXPRESSION BY VISUAL FORM

If the intention is to communicate information about a specific subject or a specific place, then our statements of ideas and concepts on these subjects should become messages which users can perceive and interpret.

The function of communication relates to the existence of a common code. A code is a socially and culturally agreed system defining relationship between expression and content. In human interaction, the codification systems such as material objects, gestures, spoken words and written words may be taken as examples used in our daily lives.

In visual communication, messages are codified in visual terms. The transmission of visual information depends on whether the sender (we may also call this, 'designer as translator of messages') and the receiver (user) are using the same visual codes. Hanno H. J. Ehses states how concept formation coincides with the the process of coding:

> Concept formation coincides with the process
> of coding insofar as the designer assumes and
> activates codes by correlating selected
> graphic devices with selected culturally
> sanctioned meanings, thus binding something
> present with something absent.(Ehses,1989,193)

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A selective code enables the designer of the graphic image to filter out certain kinds of information and to encode only those qualities which will interest the one that receives these messages. This selective representation makes the statement of concept.

Compared to verbal language, although the visual image has more capacity for arousal, it is not as efficient as the verbal language to express any kind of message. For example a picture of a nude person can affect us more than a spoken word, but on the other hand it may not be possible to express a probability or a future event by visual language.

It is a fact that these visual forms, which intervene between humans and architecture, perform their function of communication when humans confront them within a socio-cultural conventions. The following example points out how a visual image affects the human attitude at that moment.

We can imagine a house having a picture of a dog as a warning statement ('beware of the dog') at its entrance. At that moment, we presume that we have perceived the image correctly because the medium transmitted the necessary information. So, when the picture is seen at the entrance, it is easy to understand the link between the pictorial image of the dog and its informing or alerting function. Here, we suppose that humans respond appropriately to the message, that they have read the image correctly. Humans may react to it in the same way as

they react to a real barking dog, perhaps because of their past experiences.

Fig.13 A dog

The picture which is put at the entrance with the intention of warning ('beware of the dog'), may alone perform its function, when we confront it with a knowledge of socio-cultural conventions. This image functions if it is familiar to us that such an image is used for alerting or informing the public. But, if we do not have this prior knowledge, we may think of many other possible interpretations of this image. The place can be understood as a 'veterinarian' or as a 'pet shop'. So the house may be interpreted as a very different place from its actual situation.

It is a fact that if we can distinguish dogs by their kinds or by their facial expressions, this can also help us to interpret different meanings.
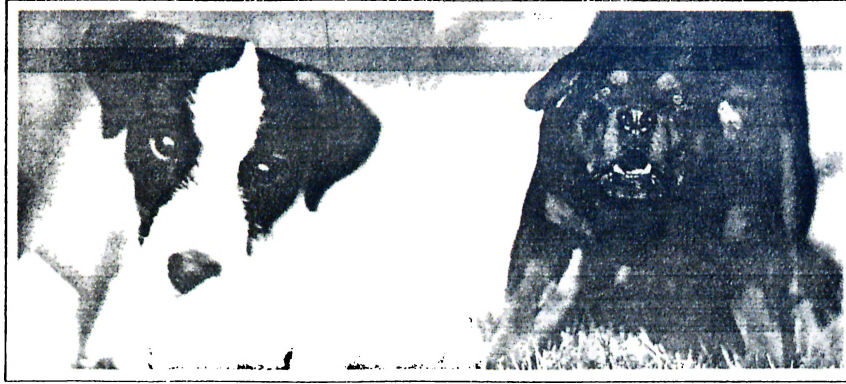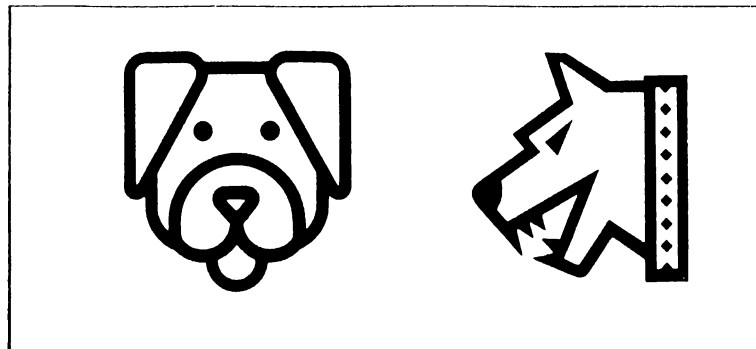
Fig.14 Two dogs

Fig.15 Graphic images conveying different messages.

Communicative potentialities of visual image depend on how messages are translated into visual forms by using different codes according to purposes and also depends on exactly where these images are placed. Therefore, we can say that an image is not explicit in itself.

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Fig.16 Set of graphic images designed for Netherlands'
Railroads.

For example, the set of images designed for a railroad
terminal appears to be self-explanatory having a limited
number of images depicting those messages which might be
expected. The purpose and context may dictate a
simplification of the code by concentrating on a few
distinctive features but the context should be supported
by prior expectations based on the user.

Three dimensional objects may also convey visual messages.
The visual information contained on their surface
communicates certain meanings, they transmit messages by
their perceived visual appearance but not by their use, so
there is no need to represent these things. For example,
an object (a car tyre or water heater) can be placed in

space such as to indicate a specific activity.
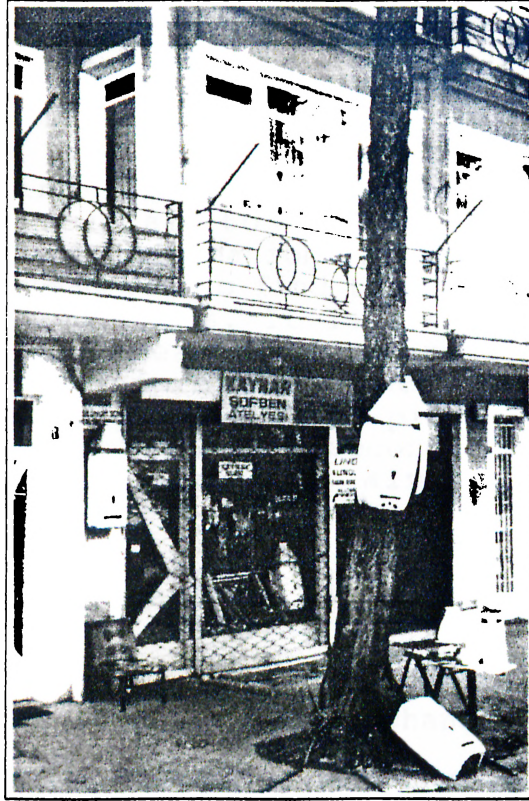
Fig.17 Water heater indicating a plumbing supplies

3.2. CONSEQUENTIAL TREATMENT OF INFORMATION

3.2.1. Organization of Information

Once we define our concept then information can be organized into an accessible and functional whole, thus it can be treated consequentially in order to arrive at consistent body of visual communication form.

We organize pieces of information in order to compare and arrange them into a coherent order and to have an easier access to the right information. A unit of information may

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tell little about itself unless it is compared to the other units of information in the same group. The organization is the result of evaluating and discovering relationships between units of information.

> Manipulating finite information in various ways is crucial to critical thinking. Evaluation of information in these different terms can lead you to find the one that works best for your needs. It is the only way to discover the meanings and relationships between the information. Once you've done this, you can decide which pieces are most important and which are secondary. Then, a possible organization almost reveals itself.(Wurman,1989,4)

Each organization which is carried according to a different criteria creates additional (new) information. The content of information never changes, but organizing it with different rules may affect what we learn about it.

For example grouping the occupants of a building according to their professions, names (alphabetical order), functions, or locations gives us different inputs and these influence us in different design solutions.

3.2.2. Putting Information into a Visual Language

Visualization of information is, consequently the supply of data on the environment and its conversion into visual codes such as colour, line, texture, then to combine them into graphic images and, finally, to juxtapose an assembly of these in space. These images function with the support of the environmental context. Humans link the knowledge of

environment with the visual intervention.

When information is organized, it is available to be converted into a visual language. This language differs from the language of writing, which is indefinitely sequential and presents itself as series of graphic image units in a line, instead of the non-linear and hierarchical arrangements in visual language. This visual language formalizes itself in the raw materials of the field of graphics and works at the intersection of image, colour, texture, surfaces, lines and empty spaces.

In general terms an image may be defined as the visible presence here and now of something absent, from another place and/or another time. "A graphic image is an intentional mark or ensemble of marks made upon a support surface by human. In the communication process it may function in two principal ways: as icon and as signum." (Smith,1986,202)

Images can be divided according to their visual functions in connection with the scale of figuration/abstraction, but not according to their visible form. But it should also be taken into consideration that, the visual border between them is not so sharply defined. These four divisions operate in the following manner:

    i- Pictures depict or describe;
    ii- diagrammes explain;
    iii- signs designate or nominate;
    iv- symbols mediate or interpret. (Smith,1986)

Here, the word 'sign' is used by Smith as meaning specifically an image function, by separating it from the linguistic sign.

Icon: This is the representation in figures and shapes, figuration predominant image. This may be sub-divided as:

i- pictorial image
ii- chart/diagramme.

Pictorial images (pictures) are most typically figurative or illustrative in character and intention, depicting a subject, showing what it looks like and how it may be recognized.

Fig.18 Pictorial images

Chart/diagramme can be a schematic representation of locational, sequential or quantitative relationships. It may show a plan, or a schematic view representing an actual environment. The iconic connection is still remarkable. It exhibits wide variations from those incorporating pictographic elements, where the degree of iconicity may be high, to others which are more abstract

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but still having logic derived from visual experience.
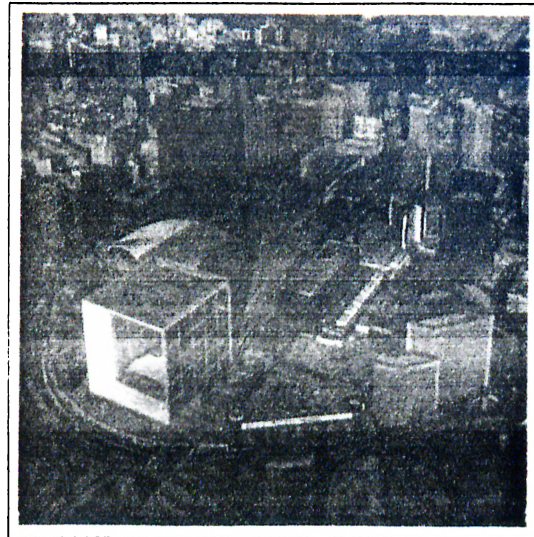
Fig.19 Aerial view of a built environment - La Defense, Paris.

It is based on a selective representation which indicates its own principles of selection. Depending on the purposes, it may be more informative than a realistic picture. A satellite photograph can have an arousal impact on us but also might fail to show the aspects that are essential for someone trying to find his way.
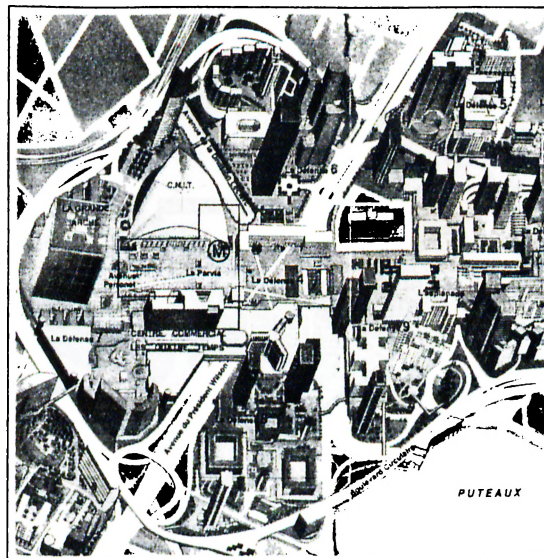
Fig.20 An axonometric representation - La Defense.

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The suppression of certain features for purposes of clarity is a kind of transition from a representation to a diagrammatic mapping. It respects to the basic geography but standardize the visible features, for example roads, rivers and forests, and it is possible to integrate other features such as city zones, underground transportation lines or population densities.
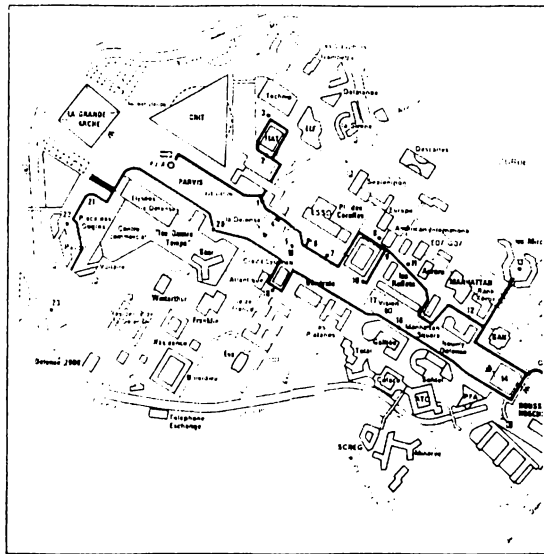
Fig.21 A chart - La Defense.
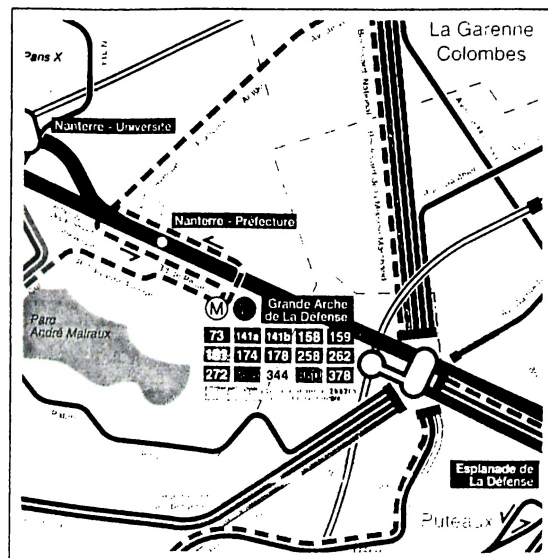
Fig.22 A diagramme - La Defense.

Chart or diagramme indicate the relations that were originally not 'visual' but temporal or logical. They may show pictures of things in logical rather than spatial relationships.

Signum: In its content or form, the abstraction is predominant. This may be subdivided:

   i-sign
   ii-symbol.

Sign: This is the domain of designation, normally governed by code or language. Signs, while arbitrary in character, have a given meaning (monosemy) by certain agreed conventions. Mathematical signs (+,=) are typical in this respect. Although iconic elements may be present as in road or airport sign systems, there is no necessary iconic relationship between a sign and its signification.
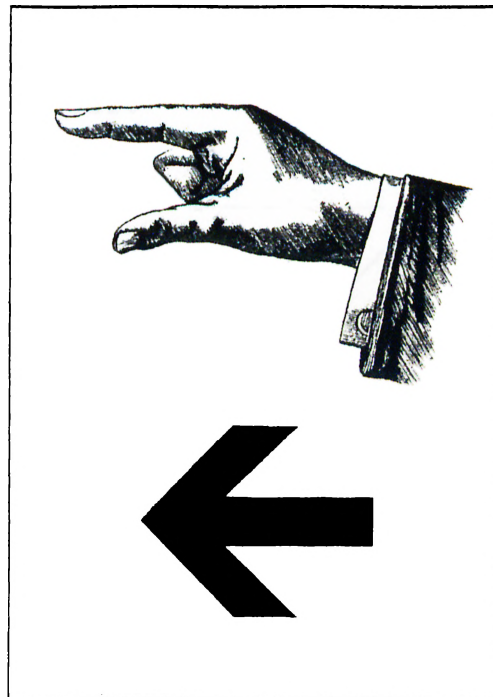
Fig.23 Direction signs.

The letters of the alphabet may be taken as phonetic signs. The alphabet also contains punctuation signs, numeric signs, operation signs and abbreviations. When these signs (such as words and letters) are printed, painted or drawn, they have visual values. Visual aspects of letters may indicate the things that the literal meaning of the word may be incapable to express.
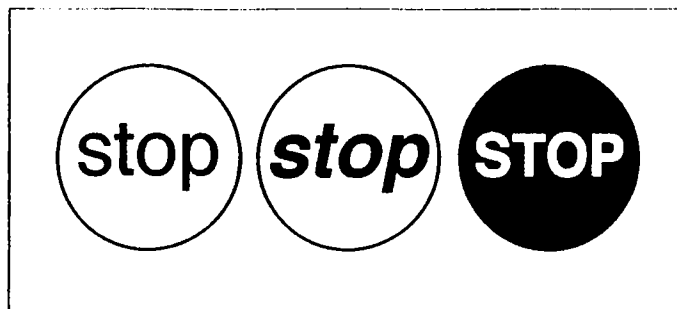
Fig.24 The word 'stop' having different visual values.

Symbol: A graphic symbol is an image having a metaphorical or analogous relationship with its referent; arbitrary in form with no necessary iconic or other link with its meaning. It is polysemic in that a cross may symbolise Christianity or succor.
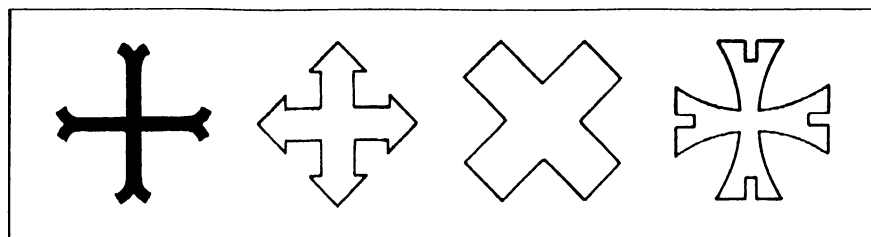
Fig.25 Christian symbols: Fork, Barbe, St. Andrew, Half Sarcelle.
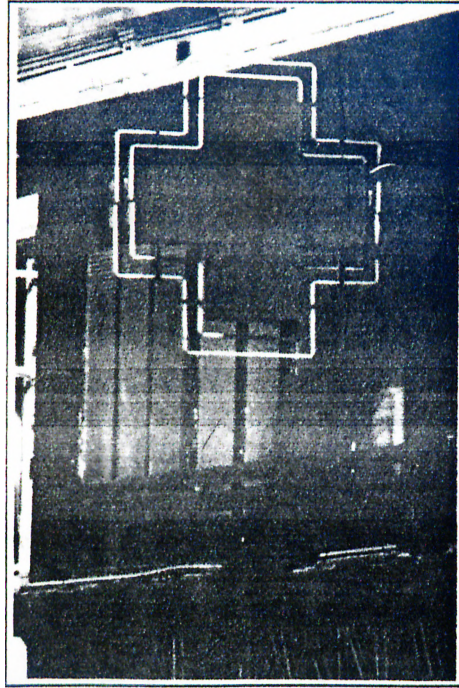
Fig.26 A pharmacy symbol.

These subdivisions of image which are explained above, do not represent distinct limits but rather transitional zones depending on purpose of communication. As it is seen in the following figure, a picture of a ball can be a typical illustration of its visual appearance, but its degree of iconicity may vary. A similar image may schematically represent top view of a tower in a plan. It may be signification of letter 'o' of the alphabet and becomes the letter sign. It may also have an analogical or methaporical relationship with its referent. So that, it may symbolize 'eternity'.
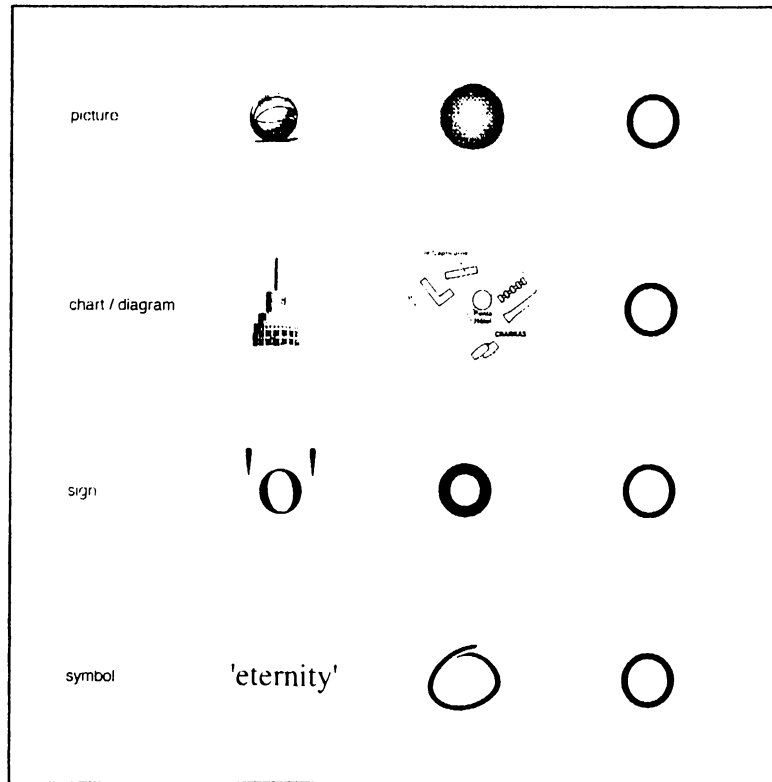
Fig.27 Subdivision of an Image.

There also exist non-image elements which are combined with the graphic image. The background, surrounding and the environmental context are mostly the elements which support the image. Colour can also be attributed to these elements such as the environment colour, the surrounding colour, the background colour and colour of the graphic image.

In representing and communicating information, the colour is another effective element with its conventional character. The colour is an information which should be treated in the same manner with the other information. The attributions of Tufte asserts that colour may change the visual level and quality of message: to label: colour as

noun, to measure: colour as quantity, to represent and imitate reality: colour as representation, and to enliven or decorate: colour as beauty. (1990)

3.2.3. Material Qualities

Integration of the graphic images into the space requires a supportive structure. A material structure as a physical body not only supports information, but in terms of its communicative value, also transmits something by its texture and form.

In a sense, architecture can be viewed as a medium which operates through the application of a two dimensional image to a three dimensional physical structure. Although graphic images are generally perceived and understood as two dimensional, superimposed entities, they are mere three dimensional elements in space and exist as a physical body which is integrated to that space.

The graphic images in the environment are normally part of a structural combination. This set of structural elements can be considered according to their order of spatial relations. Each component overlaps the other component which conceptually supports it.

In the space, normally a graphic image stands on a background, this background may be enclosed by a surrounding element. Consequently, this combination relates to a supporting field, this is the visual context

of this combination of structural elements in which the information will be confronted, distinguished and understood. In this sense, colour and texture play role as separating elements (visual) between these shapes and environmental framework. The material can also take on different states via production processes and techniques.
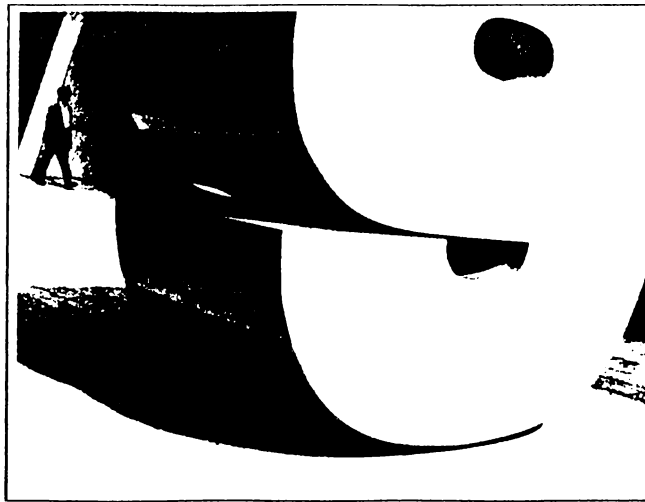
Fig.28 Street number marking entrance to the building.

Fig.29 Name of a building carved on a wall-surface.

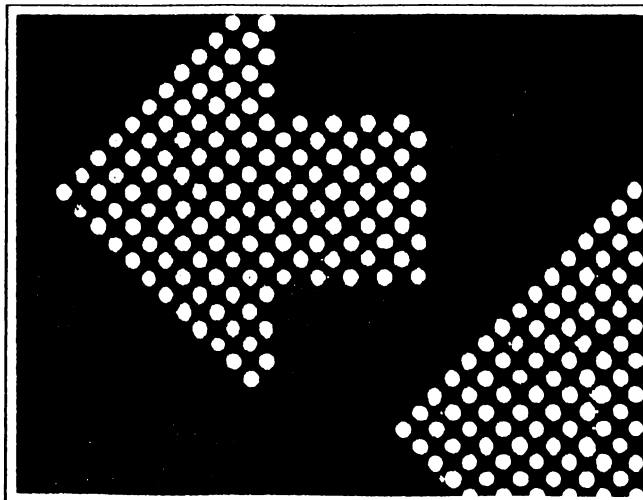Fig.30 Graphic information printed on a surface.

Fig.31 Graphic images displayed on an electronic support.

The amount of visual information such a physical medium
can support, depends on message and its relationship with
this medium. The purpose of message, its utility and
validity, in addition, the visual form into which message

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is translated may be taken as factors in determining what kind of graphic images will presented on what kind of supportive medium.

The capacity of the artificial environment is able to commit and keep the information in its memory and then to bring into use during communication process is dependent on the density of images, in addition the physical character of the material affects the recording of information.

In a way, environment as a physical matter has its own capacity to hold certain quantity of visual information and its capacity is dependent on how it is programmed or designed to hold these images. In much loaded cases, the means of simplification can provide a positive help to the functioning of the system's memory. Simplification removes the particular elements of the information, makes it reduced in content but broader in variation without destroying its meaning. In case of need, they can be brought back into use in the hierarchical order, according to the flexibility of the visual communication system which is used in architectural space.

In order to communicate complex information, it may be desirable to integrate different media having different capabilities because any single medium has limitations.The choice of how to present information can be determined both by the user's needs and the medium capabilities.

3.2.4. Juxtapositioning

Juxtapositioning is the relation between graphic images sharing a common boundary which are adjoined in the built environment. In fact, this concern is valid for every single space where there is visual communication, such as architectural space and graphic space.
Although, spatial layout of the environment, natural laws and legibility (gravity, perception etc.) can dictate different ways of positioning, the exact positioning may not be governed by a law. But some rules can be established for assembling of graphic images by considering different means such as contextual effect, density of information, and their relative locations in the space.

Contextual variables such as adjacent elements, spatial layout, visual clutter, dominant visual elements in the architectural space can affect juxtapositioning of graphic images.

Density factor in the juxtaposition process defines the quantity of graphic images per unit space or time, also relates to the spatial characteristics of the built environment. Spaces, volumes and surfaces have certain capacity to hold certain amount of graphic images.

Fig.32 Density of graphic information in an urban
environment.

The relative proximity of graphic images as the distances
between them affects their field of visual effect. Their
proximity is also a problem of overlapping.

Repetition of graphic images located at a certain distance
from one another, their appearing and disappearing
sequence differs in accordance to the changes in time and
spatial character. This recurrence takes place because of
the substitutions in the space. Changing character of the
built environment forces images to be adjusted in order to
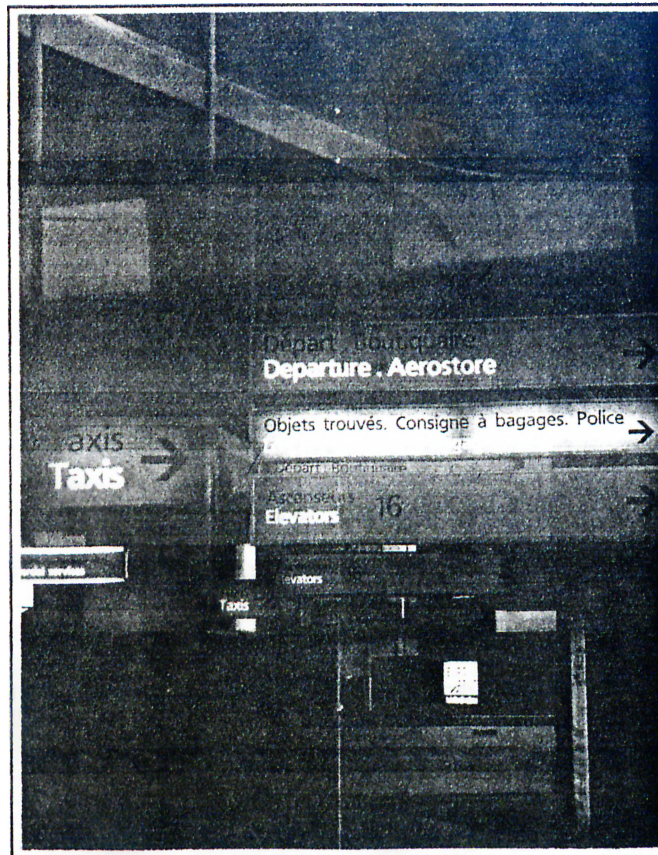keep their communicative effect.

Fig.33 Spatial arrangements of graphic information in an
airport terminal (overlappings).

The way in which the graphic images are placed in a linear
or non-linear arrangement can lead to different user
readings. They can mean a sentence by combination of
couple of different graphic images.

4. CONVEYING THE MESSAGE

Once the visual messages are produced and juxtaposed in space, human beings accept these messages in their own set of perceptions and attitudes. They may be either well or badly motivated to acquire the information contained in the message; they may have had prior experience of similar message formats; they may have been trained or have learned the significance of certain kinds of messages (attributes or content); they may be well experienced in a particular context, it may be only just familiar to them or it may be completely new; they may be literate and informed about the meaning of various graphic images that constitute the message set, or they may be ignorant of them through lack of familiarity or education or limitations of their general literacy or intelligence.

The designer's attitude during the message production should be orientated towards the appreciation of the backgrounds of humans in general who are the target population of the intended message. (Easterby,1984)

4.1. UTILITY OF MESSAGE

Legibility, meaningfulness and memorability are the three components which interactively make visual expression valid and utilizable. These affect the communicative

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properties of the graphic images and consecutively, the communicative property of space. The human factor directly affects the utility of the message.

These messages produced in the form of graphic images which are the visualizations of a designer's conceptual model perceived by users within the architectural environment. The designer's expectation in this situation is that the conceptual model should correspond to user's mental model which is formed through his/her experience, training and instruction. This is an expectation because at this moment the designer's role is in a way passive as he/she does not communicate directly with the user, but through a physical communication medium. So, the designer's expression through a medium should have a certain validity and utility.

4.1.1. Legibility

Legibility is to see and distinguish the contained message in its context. The detection and discrimination made by humans are psychological processes related to seeing, looking and finding. If the graphic images are out of the limits of legibility, the meaning of the message and, hence, any memory of that message, is out of target. Legibility refers to an ease with which the graphic images can be detected and discriminated from another by humans.

4.1.2. Meaningfulness

At this point, it can be assumed that the intended message was seen and read by the user because of its legibility. Then, the meaningfulness of a message can be evaluated whether the users in the architectural environment could interpret the designer's intention or not. Through consideration of the designer's meaning and the user's meaning, the question is how meaning can be encoded in the graphic images that, it can be easily decoded by the intended user.

Meaningfulness of a message is the ability of the user to understand specific message depending on the his/her cultural background and the context of the situation. To enable a visual message to be legible we should consider its perceptual qualities, but at the level of meaningfulness we are concerned with the denotative and connotative values which user relates to the visualized information.

4.1.3. Memorability

Memorability is any quality given to graphic images which increase the probability that it can be wholly or partially reconstructed from the human memory. The memorability of these images relates to the knowledge in the world and the knowledge in the head. "Behavior is determined by combining the information in memory (in the head) with that in the world." (Norman,1988,55)

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4.2. "IDENTITY" WITHIN THE ARCHITECTURAL ENVIRONMENT

In this section we will be discussing how graphic images as visual communication system interrelate with the architectural environment and make space function.

While experiencing a space, we refer to certain cues: responses derived directly from the architecture through spaces, volumes, surfaces, from what inhabitants and users do or say, from how the objects are used and positioned in space, and, our focus, here, the intervention of graphic images. The graphic images communicate information about a place, an event, an occupant and an object while also answering the following questions: What happens? where? When? and How?

When a user reads the cues, they identify the situation and the context, and act accordingly. These help people to behave in a manner which is appropriate for the context and the situation defined. In these cases, cues have the aim of letting users know in which kind of space or setting they are, in relative terms, whether they are public or private, men's or women's, low or high status, commercial or non-commercial and so on.

Through the intervention of images, an architectural space can be described, both generally and particularly. When a graphic image is imposed on architecture it can work (for or against) as an attribute and personalize the built environment. This particular image gives a unique,

distinctive character, and helps the user to differentiate and separate one building from other buildings. From an opposite view point, the image helps the building to select its users. This is a first level intervention towards the functioning of architectural space, emphasizing one, or a few, characteristics of the building but ignoring others. This produces specific categories, for example, an image has to represent a need to an individual. Depending on his/her own interests the individual will decide to either use, or not use, a place. If the image does not correspond to a need, the space will not be experienced.

Once we enter the building, we are confronted with general descriptions of objects, peoples, and places within the space. Description of all elements are achieved by classifying and grouping them according to their likenesses, differences and needs. The messages which graphic images carry communicate social information about the occupants and how they would like others to behave when in their territory. The image functions as a mediator for understanding the context in which so many different events are taking place.

These images become the characteristic elements of space aiming to mean something to the user. They are visual entities affecting the appearance of space. Their juxtaposition presents a logic of how the different pieces in space are connected to each other. They inform what space contains or does not contain, how it interacts with

humans, and what sort of human culture it holds in its perimeter.

In utilization of space, the human existence makes architectural environments quite different from each other. During their activity, the occupants of a space carry their culture into that space. The communication system of this space, apart from representing the spatial layout of the environment, also communicates information about characteristics and functions of these occupants. But the unescapable aspect of time, limits, either material life of architecture (which is in fact more stable to human activity) or the activity of those involving human beings. Thus, the information content which is accumulated is so dynamic and (therefore) ephemeral in its nature that communication between space and human cannot be controlled by permanent messages. This internal function, resulting from human action will force the visual communication system to evolve and be updated according to different phases in the life of the space.

Particular characteristics of a space ('atmhospere') emerges through a need for humans to use space and is continually reshaped depending on the social and cultural condition of the space. The endless forms of interaction between people and people, people and objects, and, objects and objects, present urban life as a multiple complex of structures. Visual intervention is a message given for defining these interactions in the space, at one time from the space which is at another time. When they intervene, the space takes another visual stage having

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temporal conditions. There is now a change in its content and thoroughly in its identity for the sake of its utilitarian function and of human conformity.

A graphic intervention within a specific architectural environment (Bilkent University): A proposal illustrating the ideas which are discussed above.
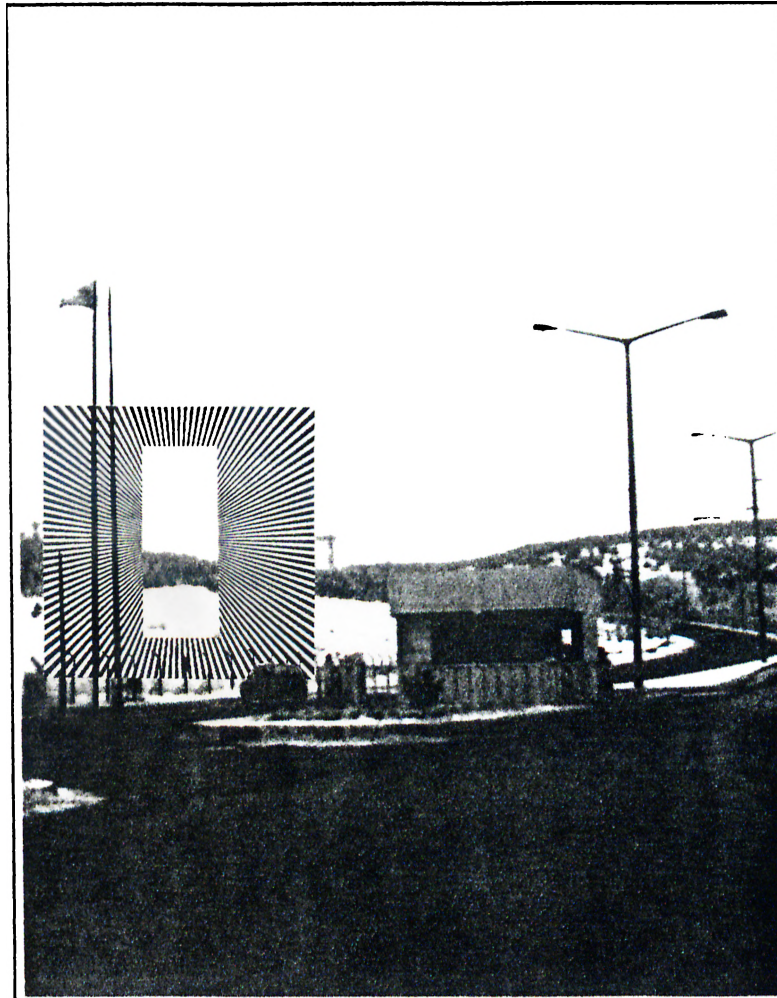

Fig.34 **A graphic symbol**: Interpreting invisible/imperceptible reality of the university campus dispersed in a wide-undefined landscape.
A frame: Communicating the existence of a built environment framed in a graphic form.(entrance to the campus)
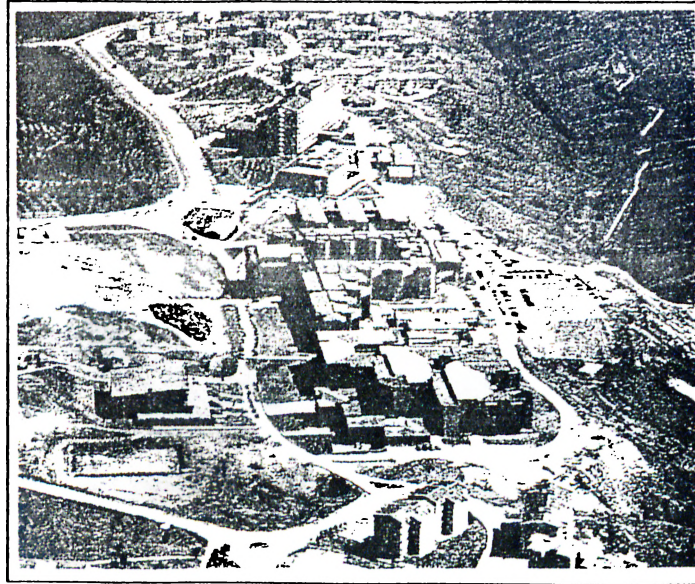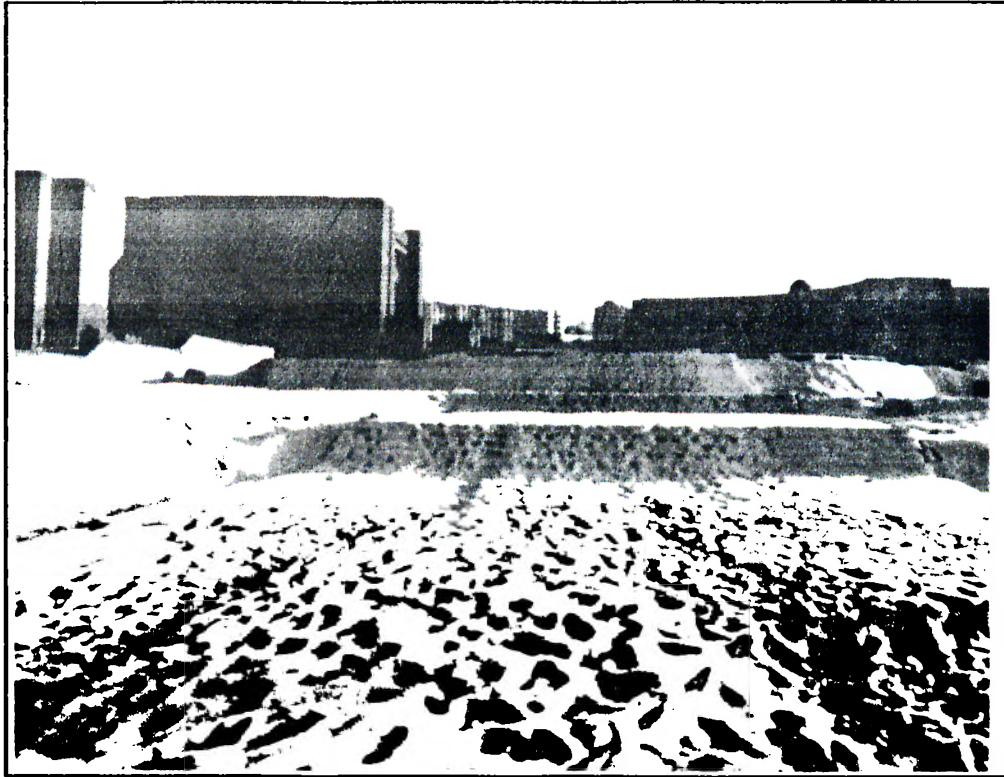
Fig.35 Aerial view of the campus.

Fig.36 An eye level view of the campus.

Fig.37   Axial-juxtapositioning of frames:
Reinforcing the sense of spatial sequence in a
large-scale and discontinuous architectural space.
(As an example, an organized sequence in the
approach to the Faculty of Fine Arts, marking
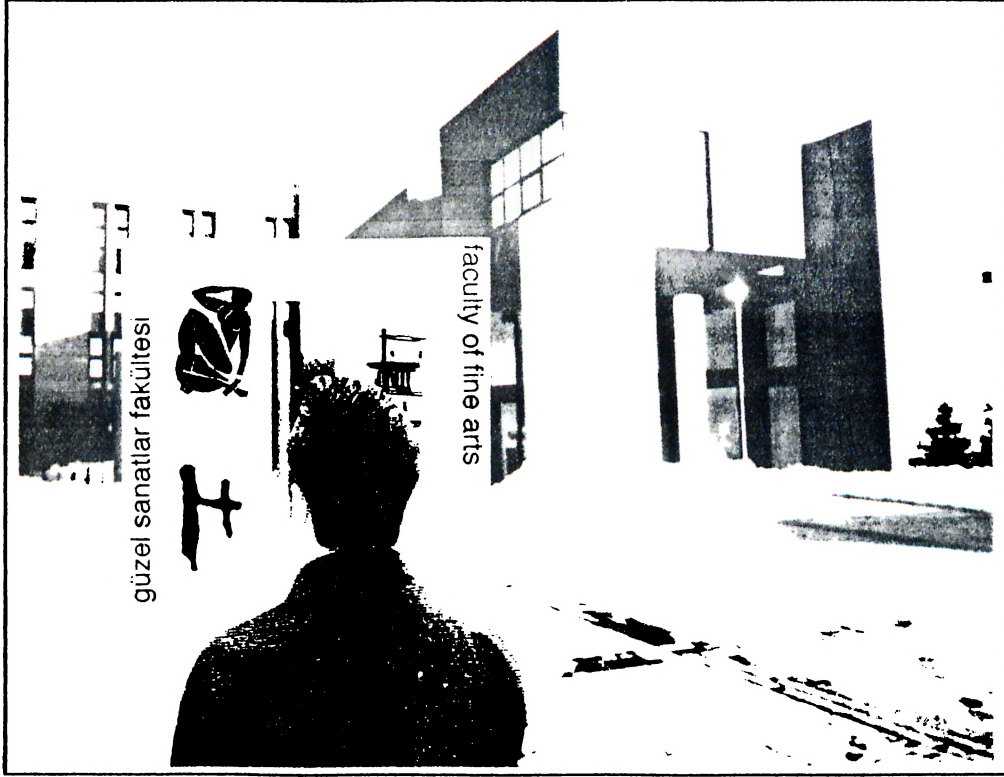one's forward progress.)

Fig.38 <u>Graphic image</u>: Information relating to the temporary/current human activity within the built environment.

<u>Framed real environment</u>: The permanent built environment as a perceptible information / real image.

5 CONCLUSION

Taking need as a starting point in human-space connection, and confronting the aspects of information within the complex urban society demands a process of developing systems of visual communication and understanding of how information is contextualized in any given environment.

Graphic image comes between man and environment in a time interval or between two events. This intervention has a mission to designate the information content of the environment in a comprehensible visual equation in order to prepare the user for real actions.

Considering the problematics of visual intervention between humans and space, leads us to develop a framework related to the process of communicating with graphic images.

Graphic images carry messages translated in a visual language and communicate their meaning both by their visual form, material and juxtaposition in space, that is their relationship to other elements in space, what we may call 'context'. As the communication takes place in a certain context. The perception and understanding of graphic images cannot be separated from the perception and understanding of the situation in which they take place. Therefore, every space is unique and every corresponding design solution should also be unique.

The designer begins with the subject and then explores concepts or themes. In this manner, conception is no longer possible with a formal concern or a mechanical calculation as a starting point. It is a methodological approach, from gathering information to conceptualization and finally to an expressive form and meaning.

The nature, content and form of the messages are the aspects which define the quality of 'access' to the environment.

Through graphic intervention, a designer gives his/her objective meaning and the human mind connects these graphic images, the architectural space and what it contains into a unity. Space functions through this connection since the meaning that is constructed in the user's mind relates to the designer's intention.

Because of the subjective nature of human communication, attempts to universalize and standardize this interaction between human and space must consider whether these reduce human activity to a function-fulfilling routine or not.

Finally a series of interrogations in the context of graphic design in Turkey may throw light to the situation. Turkey is at present confronted with the introduction of complex public spaces, under a development process within sudden rapid transformation of a cultural and social context.

Such new confrontation with solving problems of communication between human and urban space may lead the design profession to a serious process of self-questioning.

In which way can our sensory worlds act as an input for discovering new solutions ?

Can social interaction between people lead us to integrate human language, verbal and non verbal communication, into this informative visual layer ?

Can we consider spoken language as a prototypical medium for the expression of messages? Thus, can we see both the universal characteristic of language and the varieties of its usage as richness of cultural divergency?

How much knowledge can we gain through the methodology of Western practices ?

In the environmental framework that is becoming progressively artificial and visually polluted , a focus for discussion may be whether it is necessary to produce new images or whether certain universally functional images can be reused ?

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