THE CITY AS LIVING ROOM

The Criticalities of Urban Design in an age of empowerment in Sub Saharan Africa

TRACEY LEIGH KELLY

A thesis submitted to the Faculty of Architecture,
University of the Witwatersrand, Johannesburg,
in partial fulfillment of the degree
of Master of Urban Design

Johannesburg 1992

ACKNOWLEDGEMENTS

There are numerous people who I would like to thank for contributing to this thesis.

Erky Wood, for all his valuable time, intellectual stimulation, direction and motivation. Thank you!

My mother, for willingly undertaking the tedious task of typing and rectifying. Thank you!

My father, for making this educational opportunity available to me. Thank you!

Jeanine Szeles, for her contribution towards the printing and presentation of the final document. Thank you!

Roger Boden, for his enlightening urban design course, guidance and concern. Thank you!

Michiel Thoolen, for his contribution and support, particularly in terms of site visits. Thank you!

My sisters, Debbie and Hayley, for their selfless assistance. Thank you!

And to all others who have supported me and contributed to the finished product. Thank you!

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With a chronological overview of city building processes concentrating on the urban elements of the public realm.

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Through substantial government investments as a "gift to the city", together with cross subsidization and embellishment opportunities and incentives.

INTRODUCTION

In this thesis, I want to reveal the significant role which the public realm should play within the city, in accommodating the diversity of needs of the heterogeneous society concurrent within the South African context. It is the task of the urban designer to redirect city building processes in the public dimension based on the public realm. In addition to this, it is essential for the urban designer to take cognizance of the fact that the continued existence of the public realm is critical for the survival of the city in the future. According to Gordon (1987), there exists a close correlation between the public realm, one's experience within the city, livability and the potential of the city. This statement serves to reinforce the significance of the public realm and its influential interrelationships which are essential for the survival of the city. Thus, the urban designer should attempt to encourage the continuation of the processes of congregation within the city, in order to ensure that the city continues to nurture civilization.

"Positively - made and celebrated public spaces are the essential social infrastructure of successful urban environments. They are the places through which people experience the city and engage, both formally and informally, in the collective life. They are the primary elements affecting the quality of cities as experienced by all people. (Dewar, D. and Uytenbogaardt, R.S., 1991, South African Cities : A Manifesto for Change, University of Cape Town, Cape Town, p.56).

Public spaces are perceived as an extension of the private dwelling unit where various activities are enacted out by the community. These spaces also exhibit a significant role in terms of informal housing and periodic activities (such as public meetings, spontaneous meetings, seasonal markets, circuses, fairs, etc) which are vital to urban life. Economically these spaces are particularly important in terms of access to trading and producing areas, which is particularly evident in the South African context. These spaces are also influential in terms of urban design and management. Due to the congregatory nature of these spaces, they transmit structural signals to decision-makers and can ultimately influence the distribution of activities in space.

The focus of the thesis will be on that sector of society which has been excluded through apartheid ideologies, exclusionary dialectical processes and inadequate economic and financial power. (Within the South African context, this sector of society comprises the majority in terms of population numbers). As a result of these exclusionary processes currently inherent in South Africa, it is essential for the urban designer to be aware of the very significant role which the public realm possesses in the inclusion of and the provision for this minority group. The needs of this heterogeneous societal group will need to be carefully assessed, in addition to the reconciliation of the conflicting requirements of various elements within the urban system, namely:

activities which cater for the economic and service needs of the user;

access systems which meet the requirements of the user in terms of movement and communication; and

the human environment which meets the social, physical, spiritual and cultural requirements of the user. The

complexities inherent within the city need to be resolved, when attempting to provide for this minority group within the public arena, thereby encouraging the processes of congregation within the city. The reconciliation of these elements will be explicated later when dealing with the needs of the 'minority' sector within the city context.

In defining the city it is not possible to assign specific space boundaries to " the city." "Cities, like continents, are simply huge facts of nature to which we must adapt. Cities are too complicated, too far beyond our control, and affect too many people, who are subject to too many cultural variations to permit any rational answers." (Lynch, Good City Form). As explicated in the above quotation, it is very difficult to rationally define the city as a result of its' differentiating and organic nature in various contextual settings. In defining "the city", it would be more realistic to define various urban qualities which characterize "the city." This notion of urbanity is interlinked with the purpose of the city, which is perceived as being a place of civilization and urbaness, which is the product of internalised community energy.

CHARACTERISTIC URBAN QUALITIES

In order ensure that the city continues to nurture civilization, it is essential that its opportunities are maximized through the enhancement and emphasis of those qualities which accentuate its sense of urbanity.

According to Gruen (1973) urbanity is characterized by three main features, namely:

(i) the opportunity for direct (face to face) human contact, interaction and communication.

(ii) the opportunity for the free exchange of goods and ideas (emphasizing interaction and communication).

(iii) the opportunity for human freedom as expressed in multiplicity of choice (accessibility to opportunities becomes particularly important in the facilitation of choice).

Nouvel (1980) perceives urbanity as consisting of urban complexities, unexpected meeting, streets characterized by vitality, specific cultural character and the personalized utilization of space.

Dewar and Uytenbogaardt (1977) perceive urbanity as being the generic term for the positive qualities inherent in rich urban environment. The level of urbanity would be influenced by the folklore, habits, struggles and sociability through generations of inhabitants of the city.

In today's modern city, the lack of urbanity is exacerbated by technical realities, such as private car ownership, large scale industry, mass communication, post-war uncontained sprawl (and apartheid ideologies, confined to the South African context.)

Thus, the urban designer should take cognizance of those qualities which promote urbanity in attempting to achieve positive urban environments. (The various principles which encourage urbanity will be explicated, when dealing with the fundamentals of urban design, in Chapter ?).

THE PURPOSE OF THE CITY

Initially the city exhibited a collective function, perceived as possessing its own personality while representing society's values and aspirations. Sennet (1982) reinforces

this idea of the city as a place of civilization and urbaness, in the proposition that the creation of city space is a generative force, which is the functional expression of the idea of the city. The interactive forces of people, their socio-political structure, their need to be a polity, and their sense of citizenship all required the physical form of the public realm. Public spaces have been perceived as being an expression of public man, which explains what he is and what he wants to be seen as, ultimately enhancing his ability to function effectively as a public being (Lloyd, 1988). Public spaces ultimately provide a linkage between the city, citizens and their culture. Within the South African context, public space has an essential role to play in accommodating for the heterogeneous composition existing within the various cultures.

According to Rykwert (1976) the city was not just a rational solution to the various problems, but possessed a more significant role in enshrining the hopes and fears of its citizens. The city must be strong enough to survive all of its inevitable disorders, and thereby structure the urban experience allowing the citizen to 'read' it through the sort of imagery. In the contemporary city, this notion is still very relevant, in that the city must be strong enough to cater for the complexity of needs existing amongst the city population, together with the processes of congregation, which are essential for the continued nurturing of civilization within the city.

In looking at the original role of the city, Gordon (1987) makes reference to the Shrine, the Citadel and the Village which all exhibit characteristics still evident in the contemporary city. **The Shrine** was perceived as a ceremonial meeting place devoted to spiritual upliftment and a common vision of a better life. Symbolically, the shrine provided a balance between the earth and the cosmos and physically, it acted as a magnet, captivating pilgrims and predating its physical containment.

The Citadel acts as the urban stronghold with the provision of security, protection and order. (The citadel is closely interrelated to Rykwert's (1976) notion of the city as enshrining the hopes and fears of its citizens). Its congregatory nature requires certain patterns of urbanity and the ordering of public and private realms, resulting in the establishment of the pattern of relationships for the timeless institutions of man. As a result of congregation, containment and concentration, it becomes an accessible urban container, whereby the public places exhibit a multiplicity of meanings and functions.

The Village which predates the genesis of large cities revealed a multifunctional role. Its role as a permanent meeting place promoted the notions of continuity and collectivity, which were provided through the settlement form of the village which displayed its public nature. Thus, the initial and socially valuable role of cities, namely that of social contact, access to opportunities, choice, community and an enriching and culturally stimulating environment, is still relevant to the contemporary city.

An understanding of the conditions unique to a particular society is essential in the creation of public space which is socially meaningful (Hillier and Hanson, 1984). Thus, within the South African context the urban designer should exhibit an adequate comprehension of the heterogeneous nature of this society, when attempting to accommodate and cater for society within the public arena of the city.

"Congregation is the genius of the City, its reason for

being, the source of its vitality and excitement" (Critical Issues volume of the Plan for New York City : a Proposal, published by the New York City Planning Commission in Nov, 1969). The various reasons encouraging concentration and congregation within cities will next be discussed. According to Martiensson (1964) the city was the outward expression of collective life rich in activities of the creative mind, reinforcing the notions of the 'polis', thereby attracting people into the city. The Greek attitude of the city was perceived symbolically as possessing its own personality, as evident in a variety of forms. The city was conceived as being foremost a 'body politic' or as being a union or congregation of people as opposed to a grouping of buildings, which reflects the significance of man as the measure. The Greek city was an activity node, in which self-expression and the embodiment of the history and the character of the people were emphatically portrayed.

In the contemporary city, the processes of congregation are still essential for the continued subsistence of the city. The processes of suburbanization, privatization and capitalism have been responsible for the discouragement of congregation, thus exacerbating the loss of the public realm, thereby reducing livability and the potential of the city. Congregation is essential to combat the negative, subsidiary effects of the various centrifugal movement patterns existing within the city. In essence, congregation has an indispensable role to play in the continued existence of the city. Congregation is necessary to rectify the loss of the public realm, which is in turn necessary for the continued survival of the city. It is necessary for the urban designer to take cognizance of the fact that the concept of urbanity is not necessarily specific to the traditional city, but also concurrent within the modern city, as previously explicated.

WHOSE CITY?

As previously discussed, the urban designer will need to focus on the societal group who have been excluded over time with the processes of specialization, capitalism and privatization of the public arena. Within this societal sector the freedom of choice has been limited and restricted, as a result of the lack of affordability (suburbanization has tended to restrict access and choice to the more mobile and affluent sectors of society) and racial impediments. This group comprises approximately 80% of the population, who are less mobile and are therefore, forced into spatially dispersed patterns as a result of the lack of choice, which further diminishes the occurrence of social contact and associations which one normally finds in a truly urban environment (Gordon, 1987). The role of public spaces is critical for the poor who come to the city for the fulfilment of various needs which are available in the city as a result of the agglomerations of scale. Due to the fact that the entire range of needs cannot be adequately satisfied through the individual dwelling unit, these people ultimately move to the city, in which the foci of an entire community's energies and resources can be represented within the public spaces. These places become extensions of the private dwelling unit where various social experiences and activities are performed, which are very important to urban life. The rapidly expanding concentration of large corporations, have exacerbated the gradual erosion of the public arena. These large corporations have created their own internal, privatized spaces which tend to exclude the public, together with diminishing the availability of public space. According to C. Wright Mills (1967), the main forces which are consciously responsible for shaping the city are private

commercial interests. He believes that the problem of the city is how to see it as a public issue and to visualize ourselves as a public being. The urban designer should attempt to adequately satisfy the needs of this sector, thereby recaptivating the population into the city, which is dependent on these congregatory processes.

With the progression of time, specialization has occurred in various domains of society which has tended to have a particularly exclusionary effect within the sphere of public space. There has been a tendency for most buildings to exclude other people's specializations, and within the whole of the space between buildings. Thus, motorcars have themselves become almost the only other participant design specialization in the public arena, certainly the most dominant shaper of city form, which has become even more obvious as a result of apartheid ideologies. The urban designer will need to come to terms with the problems relating to the availability of choice, access to opportunities and distance. It is thus essential for the public realm to possess characteristics which enhance community life, promote exchange and cater for a full range of choices.

Having emphasized the importance of the public realm, the signif- ance of the elements which comprise the public realm becomes evident. A comparative city building analysis through time will be undertaken in order to establish what the legitimate elements comprising the public realm are, in contemporary cities and specifically South Africa. In the verification of the urban elements of the public realm the urban designer must not lose sight of the notion of "whose city?", namely the societal group whose choice has been restricted as a result of various impediments. This sector is largely dependent on the multifunctionality of the city as a result of the agglomerations of scale. Thus, the urban designer should adequately cater for this sector within the public realm through the incorporation of the necessary urban elements which ultimately contribute towards the legibility of the city as a whole.

CHAPTER 2

COMPARATIVE CITY BUILDING THROUGH TIME

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COMPARATIVE CITY BUILDING THROUGH TIME

The urban designer should attempt to understand how the elements of the public realm affect the continuation of the process of congregation within the city to ensure that the city continues to nurture civilization. The utilization of the comparative analysis of city building helps to clarify the degrees of importance of the various elements of the public realm in contributing towards the city building processes. The chronological arrangement of the analysis incorporates the influential forces of time into the various city building processes. Contextually different locations and differing time periods contribute to the overall thoroughness and complexity of this analysis. The comparative chronological analysis contributes towards understanding how city building processes can be redirected in public dimension based on the public realm. Additionally, the analysis reveals how the degree of significance of these elements has changed over time and how these elements have contributed towards the public realm and the ultimate success of the city as a positive urban environment.

"Cities are our most intricate art form, out richest self expression" (Batchelor and Lewis, 1985, Urban Design in Action). "The building of cities is one of man's greatest achievements. The form of the city has always been and always will be a pitiless indicator of the state of his civilization". (Bacon, 1973, pg 13).

The total system of artifacts which comprise the city, is infact an expression of the art of man as a social being. Bacon supports this perspective, stating that the form which cities adopt is a true expression of the aspirations of a society guided by human will. Prior to a comparison of city building through time, it is necessary to first establish a comprehensive list of those urban elements and urban qualities which are essential within the public realm of the city.

Urban elements of the public realm are physical, concrete components which comprise the urban designer's set of workable tools. It is insufficient to simply impose historical precedents on contemporary cities. It is essential for the urban designer to learn from past examples and to adapt applicable, relevant themes or solutions to present examples. In order to understand the public realm (i.e. to formulate a common, legible language of the public realm for city users) it is necessary to define a set of elements which are essential in the creation of a legible public realm and ultimately a legible city. Lynch reinforces the significance of legibility as a crucial characteristic of the urban environment which enables the community to place themselves in a holistic framework for individual action and contirbution. Legibility of the city becomes critical in encouraging continual, congregatory processes with the city, in order to ensure that the city continues to nurture civilization (as previously explicated in Chapter One). The image projection of the environment is dependant on the combination and design of a number of urban elements which form part of the public realm. Thus, the urban designer needs to establish a comprehensive list of urban elements of the public realm as a medium to work with, in attempting to foster congregation, through the satisfaction of physical and complex intellectual needs. Urban elements of the public realm are the materials which the urban designer has to create expressive form. The combination of these elements as a whole can produce expressive forms that

would not have existed if each element had been designed in isolation. Thus, urban design is concerned with the design of these urban elements in relation to one another, forming a whole.

Urban qualities of the public realm should complement the urban elements and ultimately contribute towards the legibility of the city. Urban qualities should enrich the opportunities of city dwellers through the maximization of available choices (i.e. a responsive city) ensuring that qualitatively rich, efficient and socially supportive environments emerge over time. Generally, humankind needs a language through which the public realm can be understood, which relates to legibility of the city as a whole.

THE ESTABLISHMENT OF THE URBAN ELEMENTS NECESSARY WITHIN THE PUBLIC REALM

Various theorists have covered elements which they consider to be necessary within the public realm. A brief discussion of the differing sets of elements will be given initially, in order to facilitate the derivation of a concise, inclusive list of those elements necessary within the public realm.

Lynch makes reference to five types of elements namely:

paths - the channels along which one moves;

edges - linear elements not used as paths and considered as boundaries between two areas;

districts - medium to large sections of the city having some common, identifying character;

nodes - strategic spots in a city which can be entered, having some foci; and

landmarks - external points of reference that can be singled out.

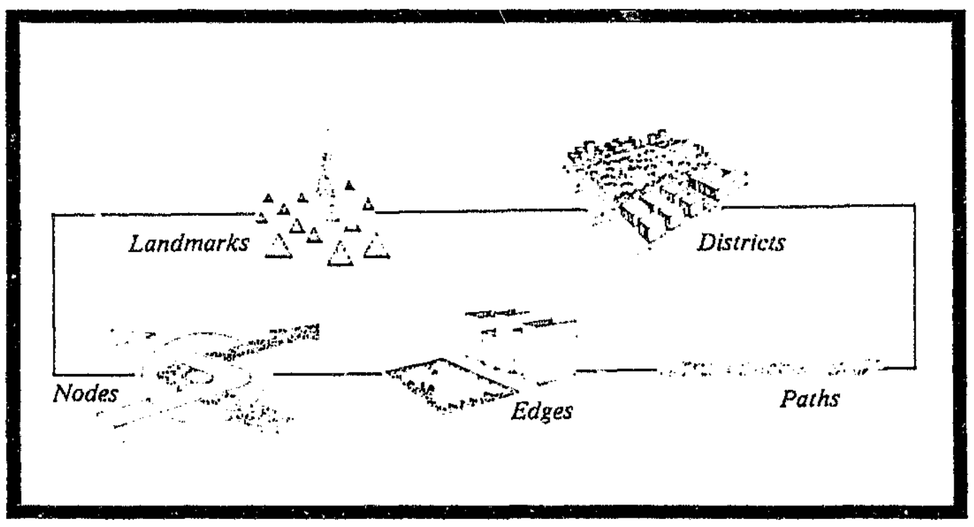


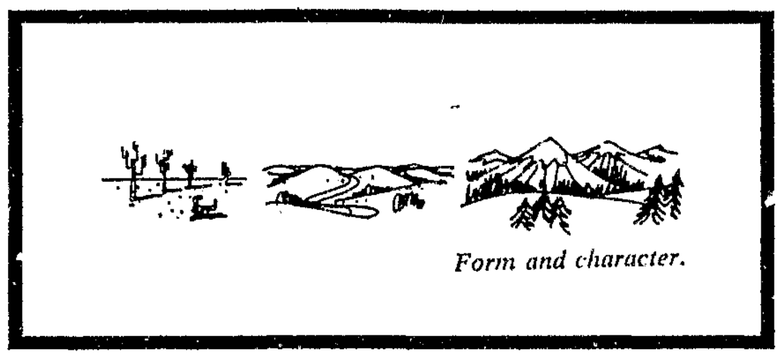
Figure 2.1 : Paths, edges, districts, nodes and landmarks.

Source : Trancik (1986), Finding Lost Space. p.121

When utilizing Lynch's five elements, it is critical that the urban designer does not simply impose them on a particular contextual situation. Rather the urban designer could creatively refer to these elements with an open mind, not as an end in itself. Lynch's elements can help the urban designer to analyze key image-forming features of the city. However, these elements should be used in supplementing and contributing towards an understanding of the public realm and not as a device which tends to be exclusionary and categorizing in nature.

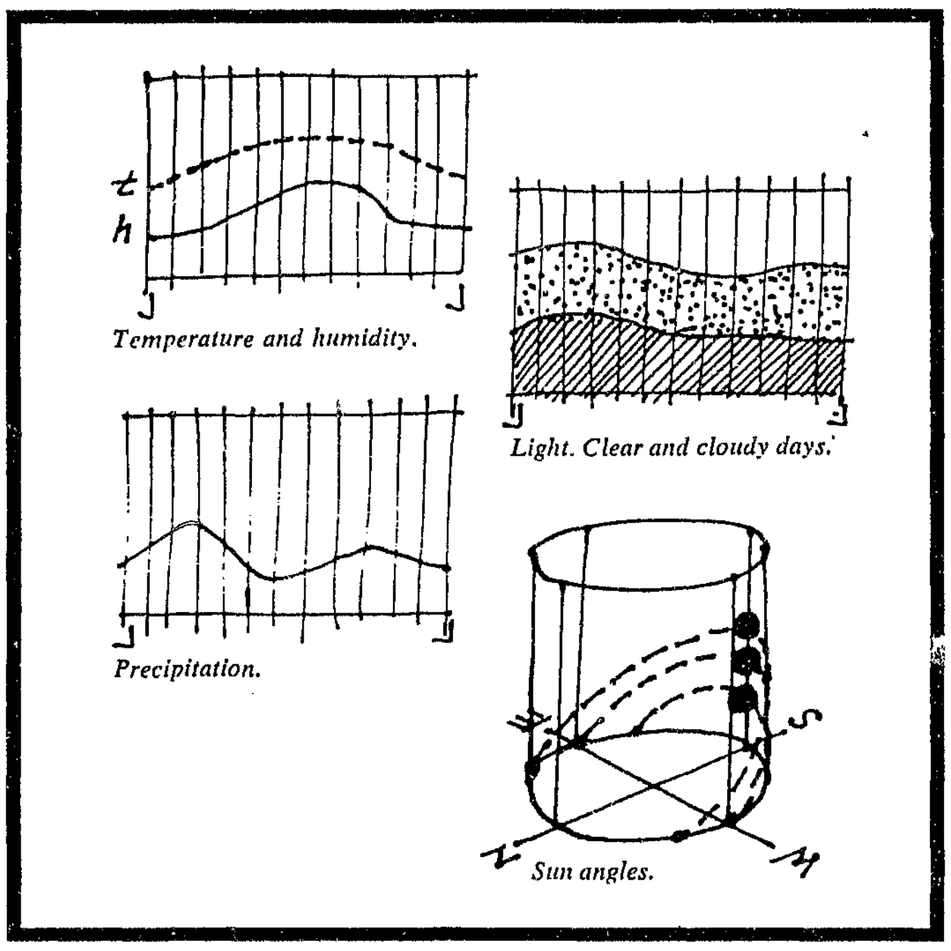
Spreiregen (1965), was also interested in the notion of the image of the city, as was Lynch. Those elements which are significant in formulating a collective notion of the physical reality of the city, are closely interlinked with those elements which are important to the public realm. Spreiregen refers to paths , landmarks, nodes, districts and edges as being the skeletal elements of a city form, upon which a broader vocabulary of elements can be attached. These elements which the urban designer should incorporate in dealing with the public realm are as follows:

- Landform and nature (the form of the land and its features)



Form and character.

- Local climate



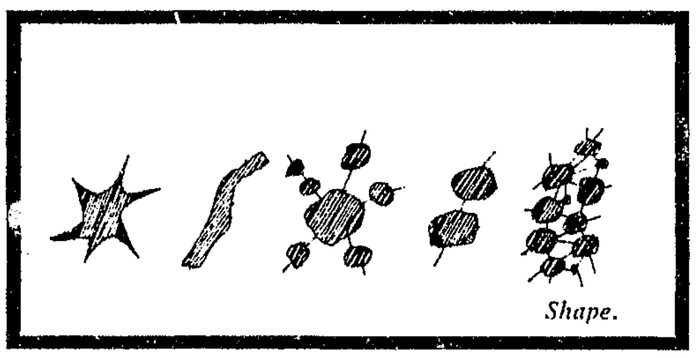
Temperature and humidity.

Light. Clear and cloudy days.

Precipitation.

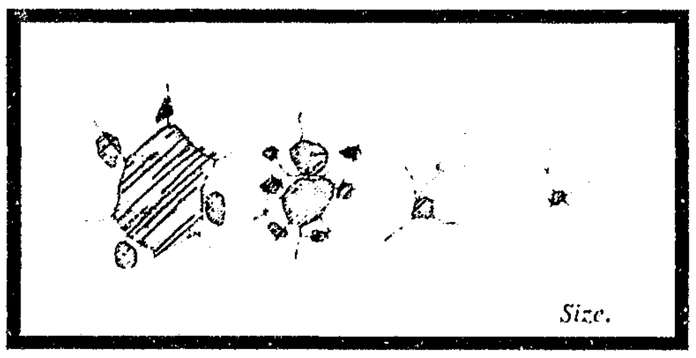
Sun angles.

- Shape

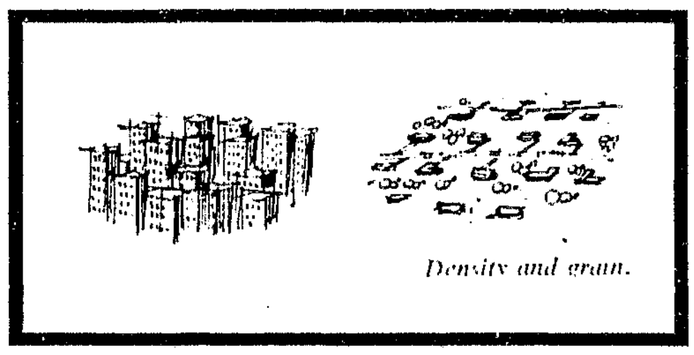


Shape.

- Size and Density

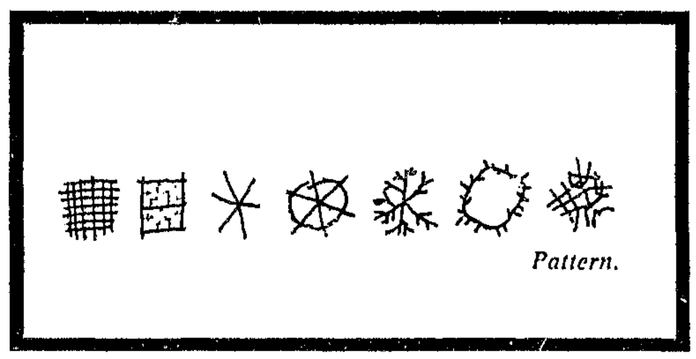


Size.

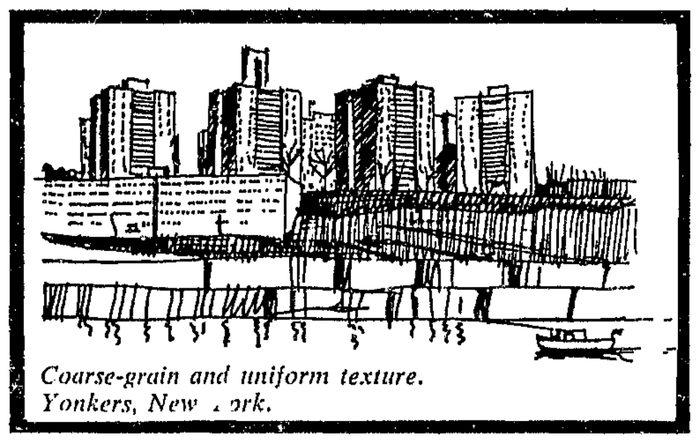


Density and grain.

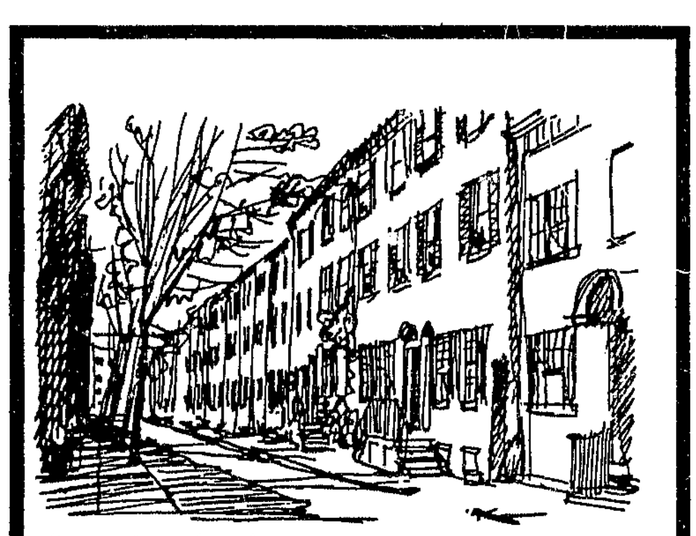
- Pattern, grain and texture



Pattern.

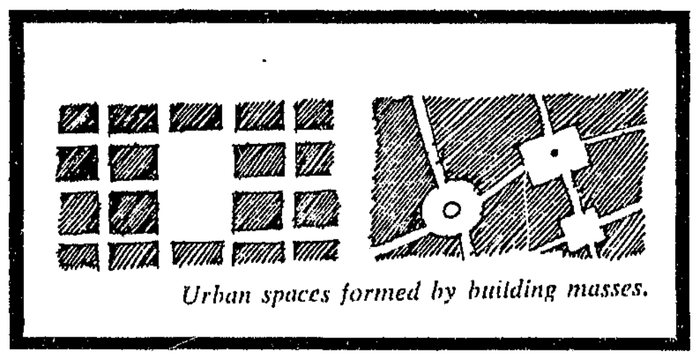


Coarse-grain and uniform texture.
Yonkers, New York.



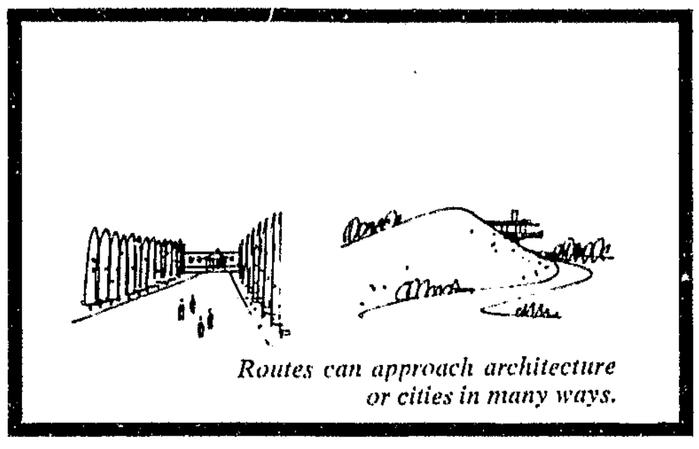
Fine-grain and uniform texture.
Row houses in Philadelphia.

- Urban spaces and open spaces



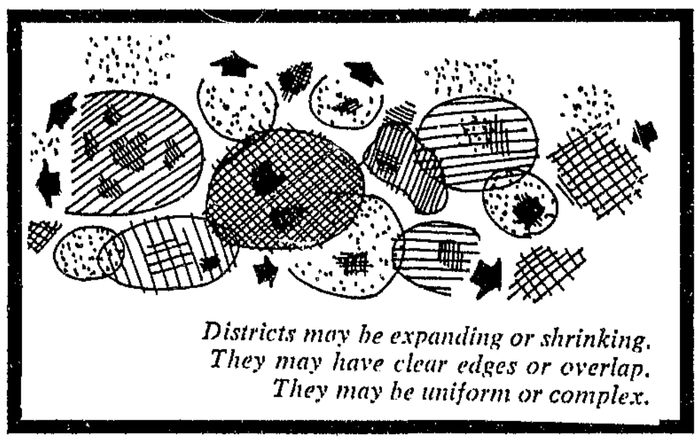
Urban spaces formed by building masses.

- Routes (approach routes)



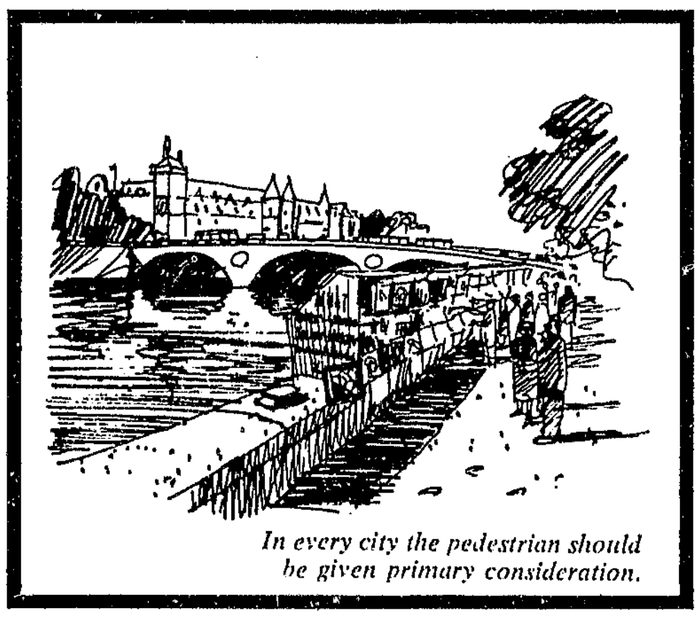
Routes can approach architecture or cities in many ways.

- Local Streets
- The Districts of a City



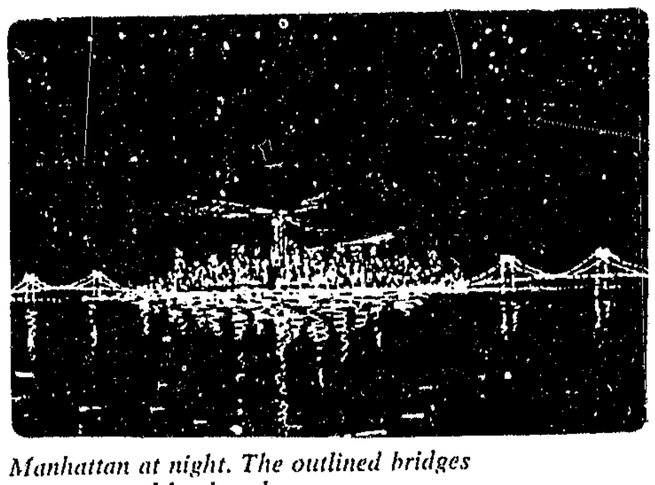
Districts may be expanding or shrinking. They may have clear edges or overlap. They may be uniform or complex.

- Activity Structure
- Orientation
- Details
- Pedestrian Areas



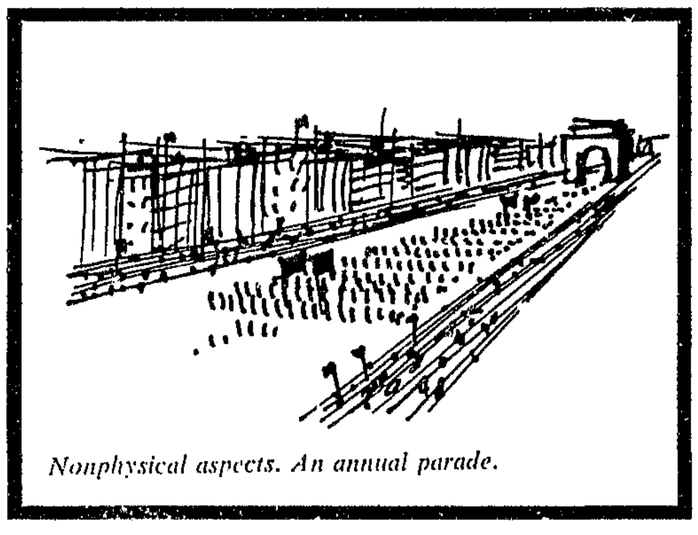
In every city the pedestrian should be given primary consideration.

- Vista and Skyline



Manhattan at night. The outlined bridges are nocturnal landmarks.

- Non-physical aspects.



Nonphysical aspects. An annual parade.

Source : Spreiregen, P. (1965) Urban Design : The Architecture of towns and cities P.52-64.

Trancik (1986) has also made significant contributions within the domain of the public arena. In dealing with the spatial entities of the city, he focuses on streets, squares and open space which are interconnected with the notion of enclosure. He perceives the primary elements which give imageability to a city as being crucial for its existence. The genius loci or spirit of the place, should also be taken cognizance of when dealing with the public realm. Other elements which he covers include built form, scale and historical precedents which should also be considered. Circulation and connection are essential urban elements particularly within the public realm, which are important tools for the restoration of urban coherence.

According to Seagal (1991) urban elements comprise movement systems, built form and open space. Boden (1990) discusses the various elements and materials necessary within the urban design arena, which includes space (externally and internally), visible activity, sequences, communicative devices, surfaces, plants and detail.

Having briefly covered differing perceptions of those elements which constitute the public environment, a concise list can be constructed. The included elements will be relevant to the public realm, and adaptable to varying contextual situations, which are as follows:

URBAN SPACE

- Squares
- Streets
- Parks
- Vacant Land
- Meeting/gathering places

INDOOR/INTERIOR SPACE

INTERFACE

CITY PLAN (layout)

BUILT FORM (relative to the public realm)

- Residential
- Religious
- Administrative/civic
- Political
- Historical/Monument (genius loci)
- Educational
- Recreational
- Retail
- Commerce/Office
- Multi-functional/Mixed use

GENERAL in terms of built form

- Scale
- Materials and textures
- Walls and facades - facade articulation can bring large buildings down to human scale or give small buildings an air of
- Buildings as activity generators
- Buildings as space defining elements

INFRASTRUCTURE

MOVEMENT

- Movement as a consequence of form
- Movement as a generator of form

VIEWS, VISTAS AND SKYLINES (visual connections)

ORIENTATION

NATURE

FLOORSCAPE (surface contours and materials)

In the initial comparative city analysis, the essential elements of the public realm will be incorporated. However, it is necessary for the urban designer to take cognizance of the various urban qualities which contribute significantly towards the public arena. In addition to this these qualities are essential in the promotion of qualitatively rich, efficient and socially supportive environments. Lynch also identified common principles running throughout the five types of elements previously mentioned, which are as follows:

Singularity:	figure-background clarity ; closure; contrast of surface.
Form simplicity:	clear simple visual form that in the geometrical sense could easily be incorporated in the image
Continuity:	of edge or surface; rhythm facilitating the perceptionof a complex physical reality.
Dominance:	by size or intensity allowing necessary simplification of an image by omission and subsumption.

Clarity of Joint:	high visibility of joints allowing for clear distinct and interconnections.
Directional differentiation:	used for structuring on the larger scale.
Visual scope:	such as vistas for example, that allow the grasping of a vast and complex whole by increasing the efficiency of vision for example.
Motion awareness:	reinforcing and developing what one can do to interpret direction or distance.
Time series:	landform sensed over time as it is approached.
Names and meanings:	give locational clues and strongly reinforce identity etc.

Bentley (1985) covers the key issues in making places responsive by maximimizing the degree of choice available to the users of a place. These qualities necessary for making places responsive, are as follows:

- permeability
- variety
- legibility
- robustness
- visual appropriateness (appearance affecting the awareness of available choices)
- richness (affecting peoples's choice of sensory experience)
- personalisation

Crane (1960) makes reference to criteria of structure which could be useful to the urban designers. They are : Predictability, symbolic place, malleability and electability.

Predictability of structure, in which development within the capital web occurs at a predictable rate, together with a definable range of alternative uses. The criterion of **symbolic place** focuses on the value of well-ordered location as being significant aspects of form (provide identity, structure, gateways, etc). The criterion of **malleability** suggests that forms and structures should make allowance for additions and modifications within the design to cater for change. **Electability** suggests that alternative environments should be provided in close proximity to fixed environments which are limiting.

Bentley and Crane both concentrate on the promotion of choice within the environment, thereby making the environment responsive to the needs of a wide range of city users. Thus, if the city offers greater diversity in terms of choice, the satisfaction of the needs of a greater number of city users will result, thereby facilitating the essential processes of congregation, which ultimately ensures the city continues to nurture civilization.

Thus, the urban designer should take cognizance of the various urban qualities which contribute towards the significance of the urban elements in the public realm, whilst making the public realm more responsive to the needs of the users. The manipulative process of the various elements which constitute the public realm, play a significant role within the urban design arena. Thus, the urban designer's success within the public realm will depend upon how well he or she is able to handle all these separate yet related elements.

Additionally, the urban designer must not lose sight of the

framework or capital web, which is the assembly of urban elements which provide the fundamentals of the public realm. The framework should provide for diversity and choice (enhanced with the utilization of the urban qualities), together with a public framework which incorporates memorable places through the conservation of existing artifacts and the creation of new spaces, places and links for movement, which become catalysts for private response.

THE COMPARISON OF CITY BUILDING THROUGH TIME.

In order to establish the significance of the elements of the public realm a comparative analysis of city building can be undertaken through time, beginning with ancient cities and terminating with modern, contemporary cities. Through an examination of these elements, the designer will be able to assess the various inadequacies and adequacies of the public realm through history and how the focus and needs of these elements (or city behaviour) may have changed over time. The urban designer should attempt to understand why some elements have lasted throughout history and why others have not, and if it is possible for certain elements to be reintroduced?

The chronological overview of the cities to be discussed is as follows:

Ancient Cities (The Greeks, the Romans and the Chinese)

Byzantine Cities

The Early Middle Ages

The Late Middle Ages

The Renaissance

The Baroque

The Enlightenment

The Age of Industry

The Twentieth Century

In addition to this, an emphasis will be placed on African city building through time, namely:

Ancient cities (Egypt, Zimbabwe)

Pre-colonial Cities (Kwarrielaagte)

Colonial Cities (Khartoum)

Post-colonial Cities (Johannesburg)

This overview enables one to gain a basic understanding and comparison of the elements of the public realm within a particular era. In addition to this, an outline of influences needs to be given in order to place the typology in a contextual situation, thereby clarifying the various differences and similarities between different periods. The ebb and flow of city building through history has created intricate crosscurrents of influence which are covered within the following categories of technology, political life, ecclastical influences, secularism, concentration of power (whether political, economic or social) the power hierarchy and culture.

The urban designer must take cognizance of the fact that these elements do overlap and do not occur in isolation. The combination of these elements contributes towards the achievement of expressive, positive urban environment (that would not have been possible if each element had been designed in isolation).

THE GOLDEN THREAD

The City must continue to nurture civilization.

⇩

HOW DOES THE URBAN DESIGNER TAKE COGNIZANCE OF THIS ?

Through focusing on the urban elements of the public realm.

⇩

WHERE SHOULD THE URBAN DESIGNER BEGIN ?

With a chronological overview of city building processes concentrating on the urban elements of the public realm.

⇩

WHAT CAN THE URBAN DESIGNER LEARN FROM HISTORY ?

That the elements of the public realm have been delivered in accordance with the needs and desires best served by the power elites.

⇩

HOW CAN THE URBAN DESIGNER RECTIFY CHRONOLOGICAL DOWNFALLS IN THE CITY BUILDING PROCESS?

Through the establishment of fundamental urban design criticalities which redirect the public dimension based on the pubilc realm.

⇩

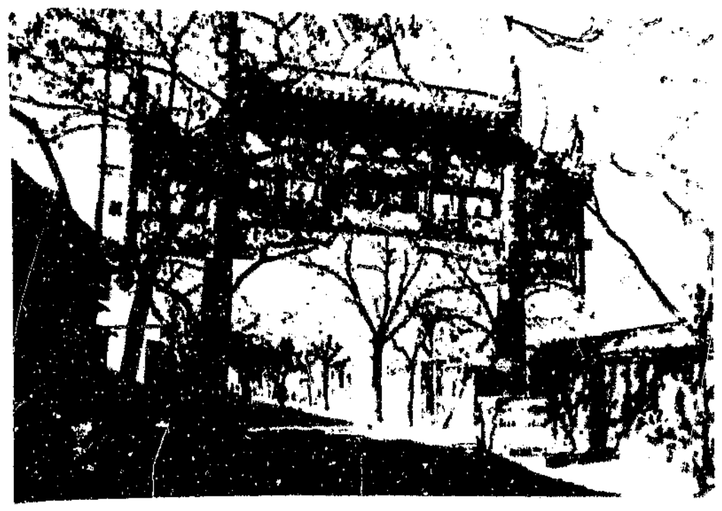
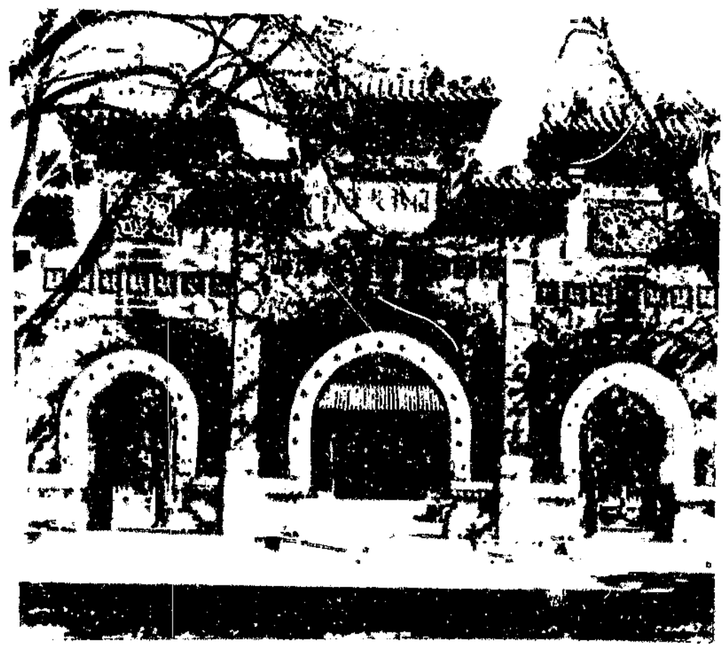
HOW DOES THE URBAN DESIGNER APPLY THESE URBAN DESIGN CRITICALITIES ?

Through redirecting the city's form in the public dimension based on the public realm as demonstrated in the urban design framework.

⇩

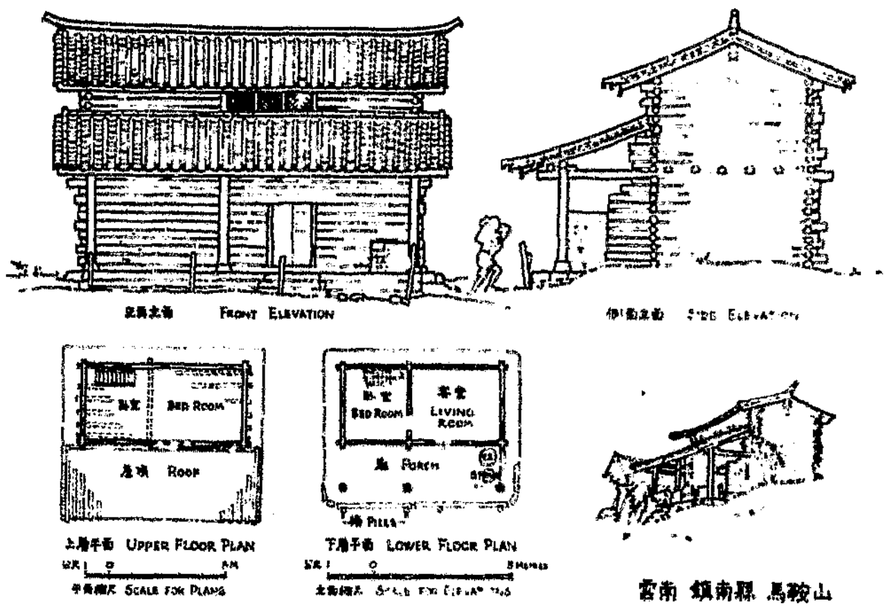
HOW DOES THE URBAN DESIGN FRAMEWORK BECOME TANGIBLE?

Through substantial government investments as a "gift to the city", together with cross subsidization and embellishment opportunities and incentives.

ELEMENTS OF THE PUBLIC REALM	THE CHINESE (c.1523BC - 1949)
URBAN SPACE	
- Squares	
- Streets	Along important streets, the p"ai-lou may be found which is an open symbolic gateway.  **Fig"re A.1** : Street P'as-lou, Peking. **Source** : Liang Ssu-ch' eng, (1984), A Pictorial History of Chinese Architecture, p.185.
- Parks	The art of Chinese gardens dates back to the fifth century and was cultivated throughout the succeeding dynasties, achieving its pinnacle in the sixteenth century. The creation of space is important in creating organic patterns which unify the atmosphere with the earth. Buildings are of secondary importance, tending to be concealed and symmetrically planned in contrast to the organically planned garden.
- Vacant Land	
- Meeting Place	
- INDOOR/INTERIOR SPACE	
INTERFACE	The Chinese feature, namely the p'ai-lou creates a characteristic interface in which the gradation and definition of space becomes evident.  **Figure A.2** : Terra-cotta p'ai-lou, Peking. **Source** : Liang ssu-ch' eng, Op. cit, p.185.
CITY PLAN (layout)	
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	THE CHINESE (c.1523BC - 1949)
- Residential	Domestic architecture reveals a freedom in planning (in the province of Yunnan) where various sizes and functions are interrelated. A high degree of picturesqueness is achieved through the intersections of roofs and romantic fenestrations.

Figure A.3 : Mountain houses, which are contextually relevant.

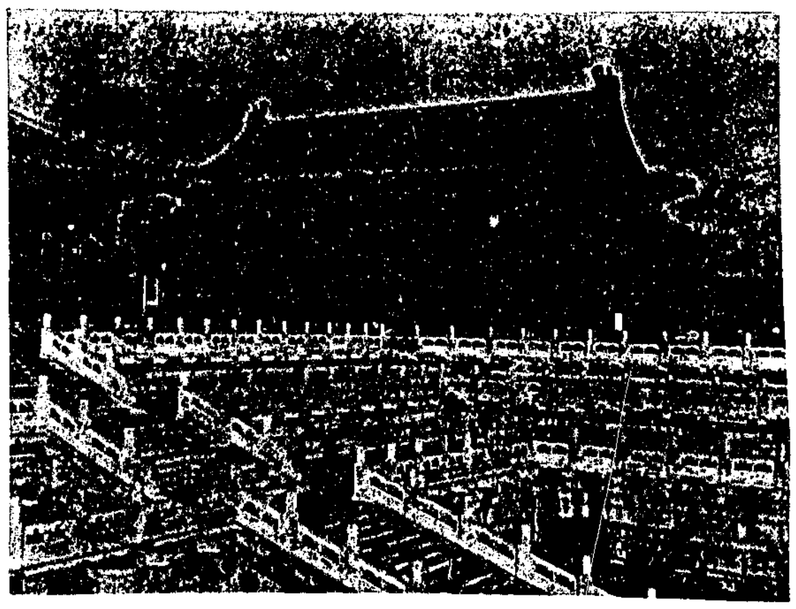
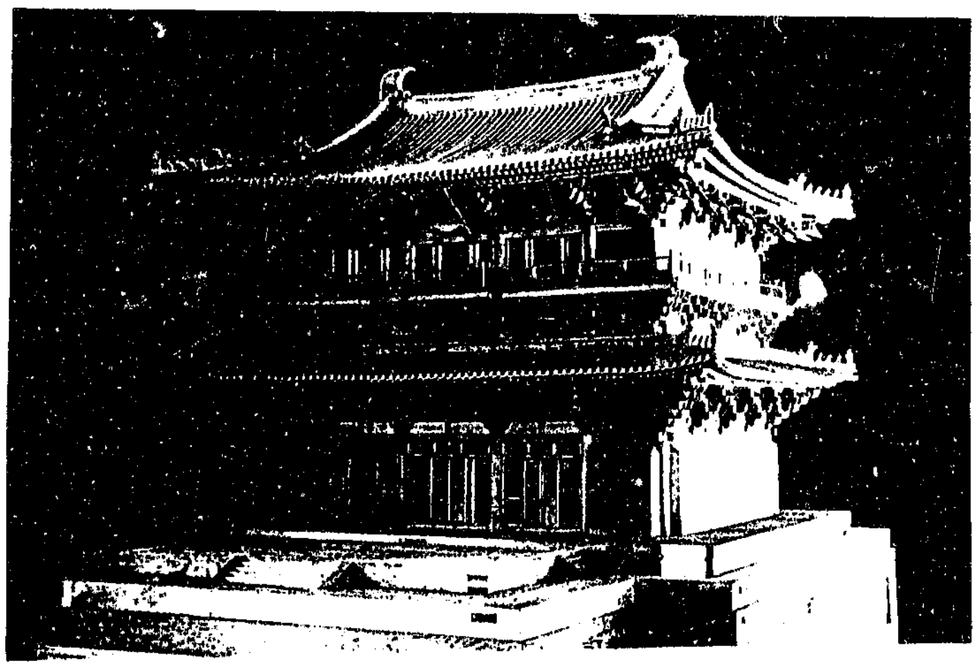


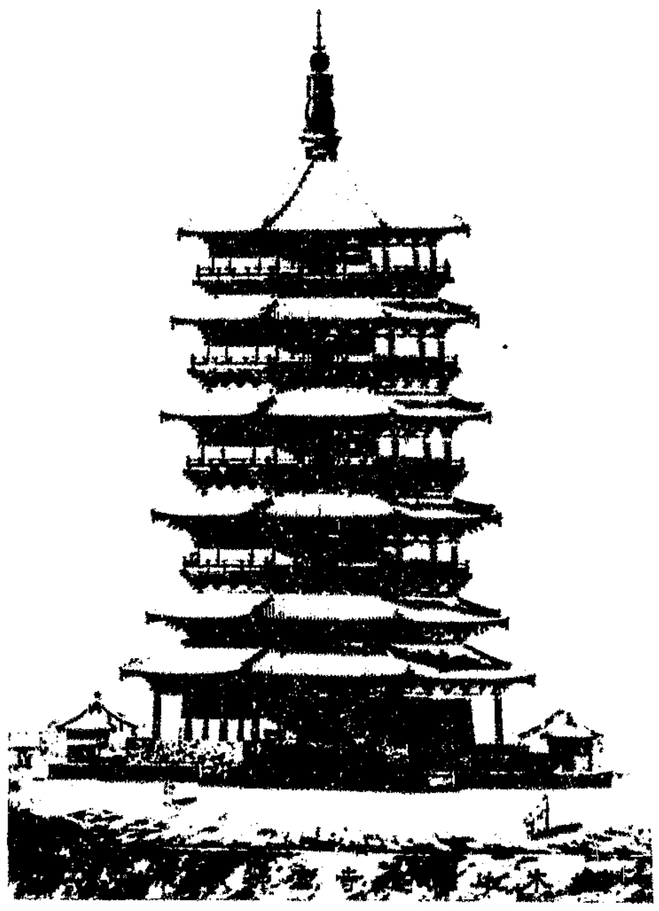
雲南 鎮南縣 馬鞍山

Figure A.4. : Elevations and plans of domestic architecture.

- Religious	The religious structures incorporated the essentials of trabeated construction. Rock cut tombs were important in the Eastern Han Dynasty.

Figure A.5. : Han rock-cut tombs near Chiang-k' ou, Szechuan.
Source : Liang Ssu-ch' eng, Op. cit, p.27.

ELEMENTS OF THE PUBLIC REALM	THE CHINESE (c.1523BC - 1949)
- Administrative	The administrative structures tend to be reflective of the various dynasties. Buildings tend to cling to the traditions which were inherent in the city. The Chien-chi Tien (renamed the Pao-ho Tien) reflects the Ming designation through general propo.tions and details (inscriptions on the structural features above the ceiling).  **Figure A.6.** : Pao-ho Tien Imperial Palace, Peking, 1615.
- Political (Military)	
- Historical/Monumental	Monumental buildings have tended to characterize chronological periods of rulers eg. the Liao, Sung and Chin dynasties. The scale inherent in these elements enhances the monumentality of the structure. The incorporation of colossal statues and structural detailing reinforces the dominance of the monumental buildings.  **Figure A.6.** : Kuan-yin ke, the structural details. **Source** : Liang Ssu-ch' eng, Op. cit, p.51.

ELEMENTS OF THE PUBLIC REALM	THE CHINESE (c.1523BC - 1949)
- Educational	Numerous educational buildings were erected during the Ch'ing dynasty. Scale tended to be massive (in terms of room heights, not overall height), enhancing the importance of these buildings. The educational component was often related to the Imperial Palaces, (ie. the wealthy tended to be educated).  **Figure A.7.** : Wen-yan, Ke, Imperial Library. **Source** : Liang Ssu-ch'eng 1776, Op. cit, p.112
- Recreational	
- Retail	
- Commerce/Office	
- Industrial	
GENERAL i.t.o built form	
- Scale and Mass	Scale tended to be reflective of the power elites, particularly within the public buildings. Pagodas were a characteristic element in Chinese architecture, which were important orientating devices, as a result of the immense scale of these structures.  **Figure A.8.** : Wooden Pagoda, Fo-kung Ssu, 1056 (note the people in order to conceptualize the scale). **Source** : Liang Ssu-ch' eng, Op. cit, p.70.

ELEMENTS OF THE PUBLIC REALM	THE CHINESE (c.1523BC - 1949)
- Walls and Facades	Characteristically, Chinese architecture consists of a rectangular hall, dominated by a pitched roof with projecting eaves, supported by a bracketing system and wooden columns. Walls serve no bearing function, but are purely present as screening elements. As early as the Han dynasty, combinations of brackets, impost blocks and columns were utilized as part of the support system for the weight of the massive tiled roofs. The exterior was given animination through the use of varying shapes of the brackets.

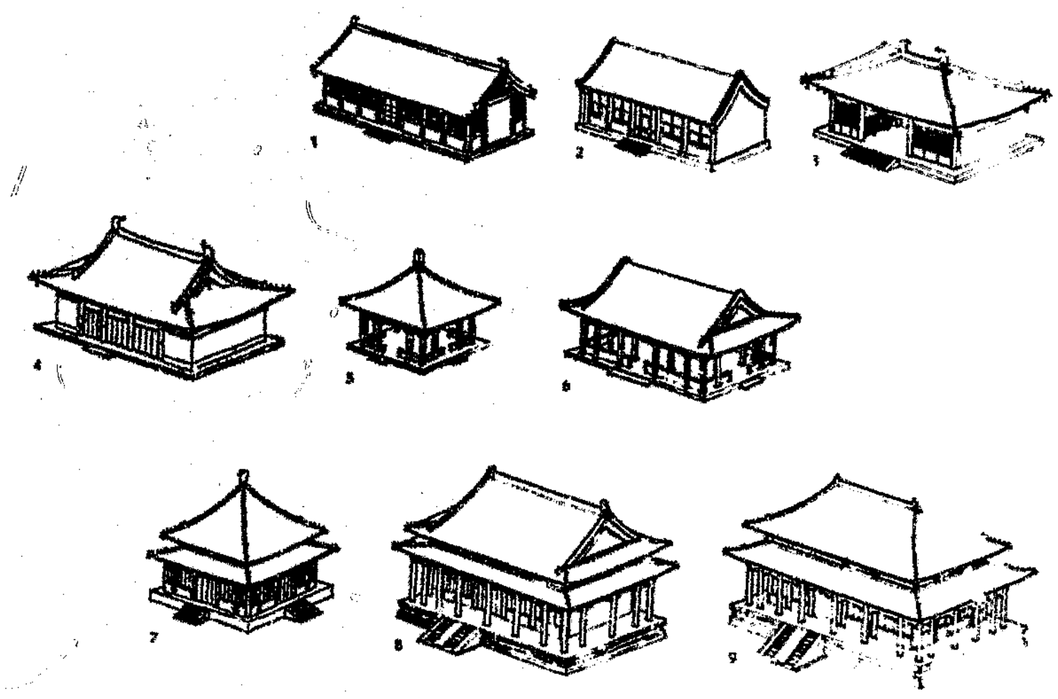


Figure A.9. : Roof and "wall" typologies
Source : Liang Ssu-ch' eng, Op. cit, p.11

Ornamentation was often more significant than function, which was intensified with colour.

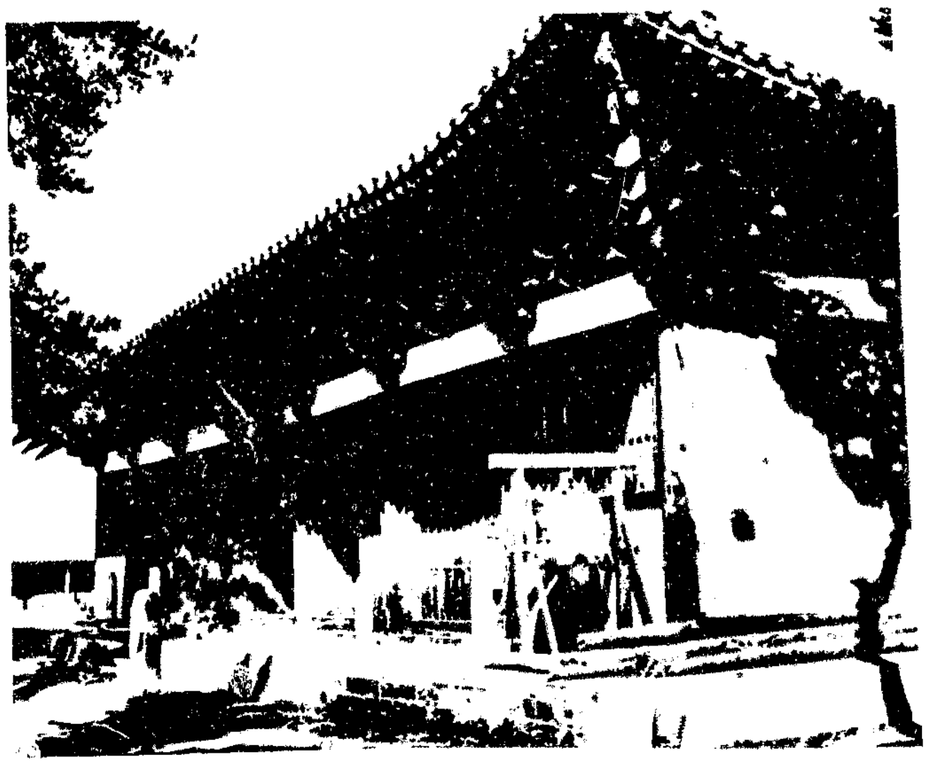
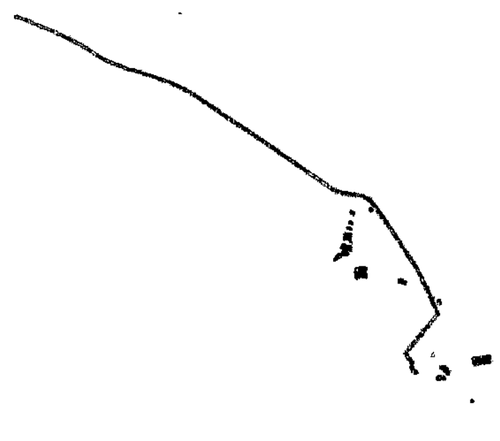
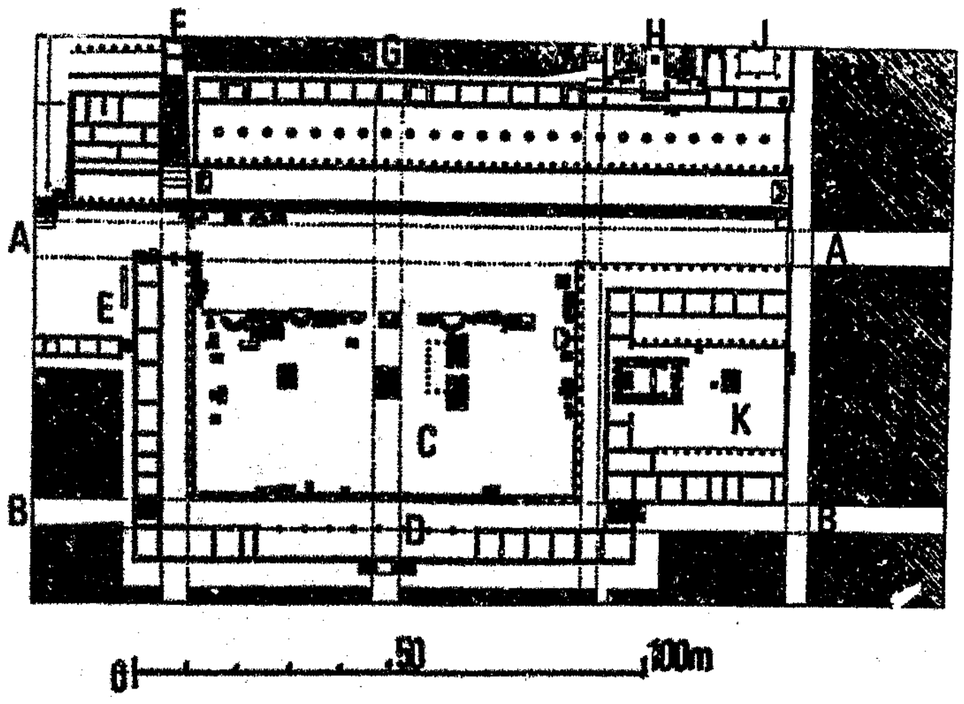


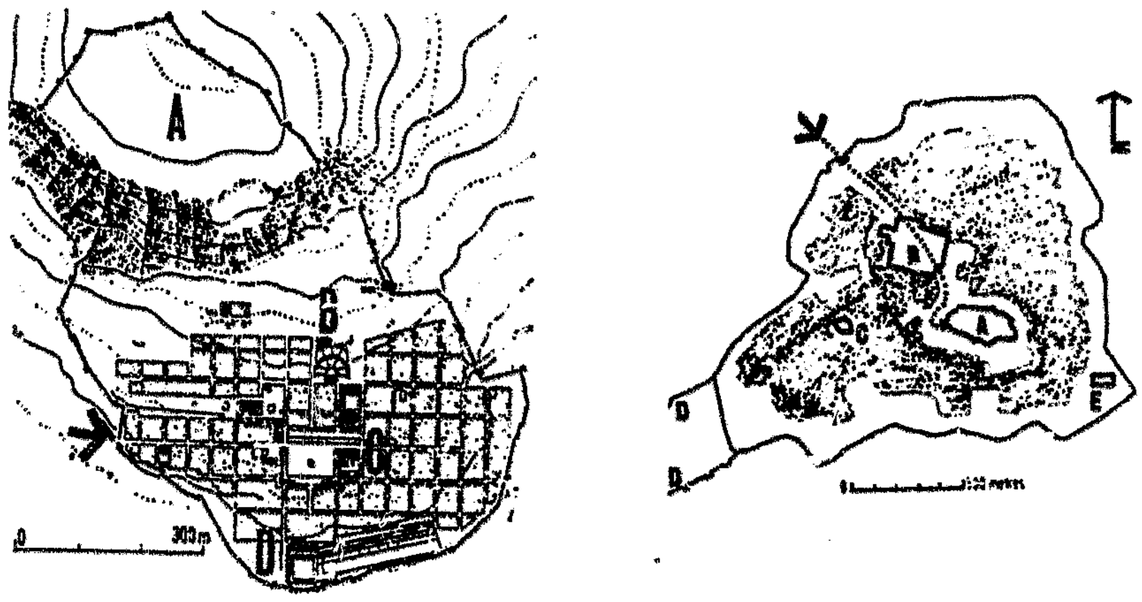
Figure A.10. : The Facade of the Main Hall, Fo-kuang Ssu, 857 (note the ornamentation and the screening porches).
Source : Liang Ssu-ch' eng, Op. cit, p.44

ELEMENTS OF THE PUBLIC REALM	THE CHINESE (c.1523BC - 1949)
INFRASTRUCTURE	Bridges were evident in China, the earliest were of wood and pontoon bridges used for crossing wide rivers. The oldest arched bridge existing today is the Great Stone Bridge.  **Figure A.11.** : The Great Stone Bridge, 581 - 618. **Source** : Liang Ssu-ch' eng, Op. cit, p.176 Bridges are important in contributing to the accessibility and ligibility within the city.
MOVEMENT (physical connections)	
Movement as a consequence of form	
Movement as a generator of form	
VIEWS, VISTAS AND SKYLINES (visual connections)	The pitched roof silhouette is still a dominating feature in terms of the skyline, and originates back to the Chou and Shang times. Verticality is an important device, incorporated to break the monotony of horizontality.
ORIENTATION	The orientation of buildings and even whole cities has for centuries been ordered on a strict north-south axis. Houses, palaces, temples and official buildings were incorporated within one formal pattern. Even the bridges and pavilions within the informal gardens were carefully devised, despite their random appearance. Pagodas were also important orientating devices.
NATURE	
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE CHINESE
- Technology	
- Political life	
- Ecclastical (of the church)	
- Secularism	The asymmetry of growing things, the ceaseless and random movements of nature, and the infinity of cosmic occurrences are reflected within Chinese art, which becomes the total expression of the artists' experience of nature.
- Concentration of power political economic religious	
- The Power Hierarchy	The developments of city building have migrated through a diverse range of power hierarchies beginning with the Shang dynasty, in which the king was a feudal ruler. During this era warfare with the neighbouring states was frequent as explicated by the protective walls which surrounded the city. A power hierarchy from royalty down to slaves was evident as revealed in the royal tombs accompanied by beheaded slaves and captives. About 1027 BC the Shang dynasty was overthrown by the dynamic and bold Chou dynasty, which led to the separation of the city into a number of feudal states (sixth century BC). The Late Chou period was characterized by political turbulence accompanied by an intellectual and artistic upheaval. The third century BC was a period were attempts were made to eradicate old traditions under the ruler Shih Huang Te. In 206 BC a new dynasty, the Han was founded possessing powerful centralized government and a strong military force. The succeeding period revealed the introduction of Buddhism. Following this, China entered a period of political confusion. During the following century, Chinese city building processes were influenced by the Buddhism of India, as evident in the great cave sanctuaries which were cut into the loess cliffs. The short-lived Sui dynasty (581 - 618) was succeeded by T'ang empire which was characterized by political power as evident in the magnificence and richness of the city building processes and other embellishments. The dynasty of T'ang was destroyed by the ravages of civil war. During the period of the five dynasties it was possible to distinguish between various individual styles. In 1127, as a result of increasing pressures from the Tatars and Mongols, the capital of China was re-allocated to the south. Infinity of space, equilibrium, symmetry and unity are some of the concepts which were stressed and incorporated into the arts of this period. In 1279, the dynasty crumbled under the continual attack of Kublai Khan, and was dominated by the Yuan (dynasty of the Mongol invaders). A new level of dynamic, expressive intensity and harmony was attained, together with a degree of personalization in artistic works. In 1368, the Mongol overlords were driven out by the native Ming dynasty. The court became a centre of patronage and activity. Up until the eighteenth century powered waned and rose between various power hierarchies. In 1949 social realism was depicted in various artistic styles, aimed at serving the people in struggle to liberate and elevate the masses. Contemporary city building through Chinese history has followed a very dynamic process of declining and rising structures of power elites.
Culture	The pagoda which has become a symbol of China, can be attributed to the influence of Buddhist architecture. The towers, which seem so characteristic of the Chinese countryside, were infact derived from the Indian stupa, originally found in Gandhara, where terraced and towering variants of the stupa had once impressed Chinese pilgrims with their grandeur.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
URBAN SPACE	
-Squares	The polis was a place of congregation, (an activity node) bringing forth the free citizen. The 'body politic' was a union of people as opposed to buildings. In Greece, squares only developed after 500BC in accordance with the polis. The anonymous individual became a citizen with the increase of democracy, and importance was placed on the gathering place (polis) which adopted a specific shape. (p. Zucker, , Town and Square).
-Streets	The street was not treated as a principal design element but as the minimal leftover space for circulation. However, routes leading to significant destinations were emphasized. e.g. The Panathenaic Procession, which starts at Dipylon Gate, cuts diagonally across the Agora and ends at the Propylaea or entrance to the Acropolis, with other main streets converging on the Agora. The Panathenaic Way was the central spine along which the major mercantile, industrial and political functions occurred, comprising the life of the city.  **Figure B.1.** : The Panathenaic Procession (600 - 479 BC). **Source** : Bacon, E.N. (1975) Design of Cities, p.52.
-Parks	
-Vacant Land	

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
-Meeting Place	The agora was the central zone of the city, its living heart and a place of assembly where town folk gathered for the handling of affairs. Festivals, knightly tournaments, military exhibitions where also held within the agora. Other important functions existing within the agora included law, government, commerce, industry, religion and sociability. The buildings that surrounding the agora generated a variety of functions. The agora was perceived as being the architectural expression of the public life of the city. The idea of the agora as both a place and as a space is important within the urban design arena.  **Figure B.2.** : Detail plan of the Agora at Priene. **Source** : Morris, A.E.J. (1979) History of Urban Form, p.29
INDOOR/INTERIOR SPACE	Ingenious development of interior space and great scale as is evident in the oracular Temple of Apollo at Didyma (construction began in 313 A.D.). Complex spatial planning was evident in the large interiors of buildings.
INTERFACE	

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
CITY PLAN (layout)	The Archaic Period - the grid system was utilized. Hellenistic Period - the systematization of the regular street patterns of the gridiron type .i.e. the Hippodamian scheme, where streets intersected at right angles, without any particular axial emphasis that could suggest dominant traffic patterns. Systematic city planning was evident in Miletus and Priene in contrast to organic city planning of Athens.  **Figure B.3.** : Priene, general plan (left side) and Athens, 5th century BC (right side). **Source** : Morris, A.E.J. Op. cit. p. 28 and p.30, respectively.
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
- Residential	The residential requirements of ordinary people without means were taken cognizance of and occasionally satisfied in Classical and Hellenistic Greece in the form of planned housing projects. e.g. The suburb of Olynthos (later fifth century B.C).

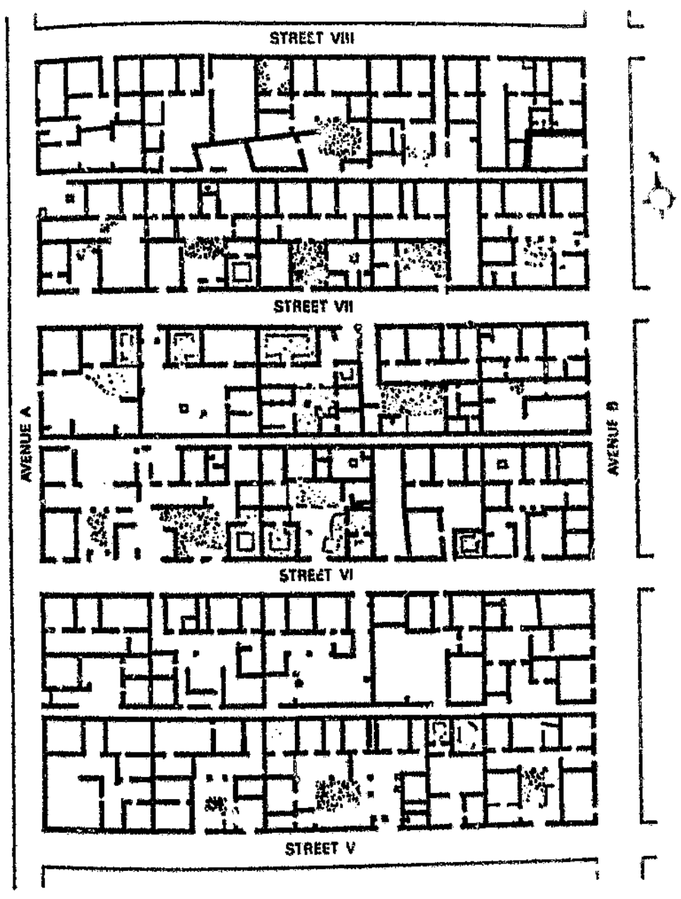


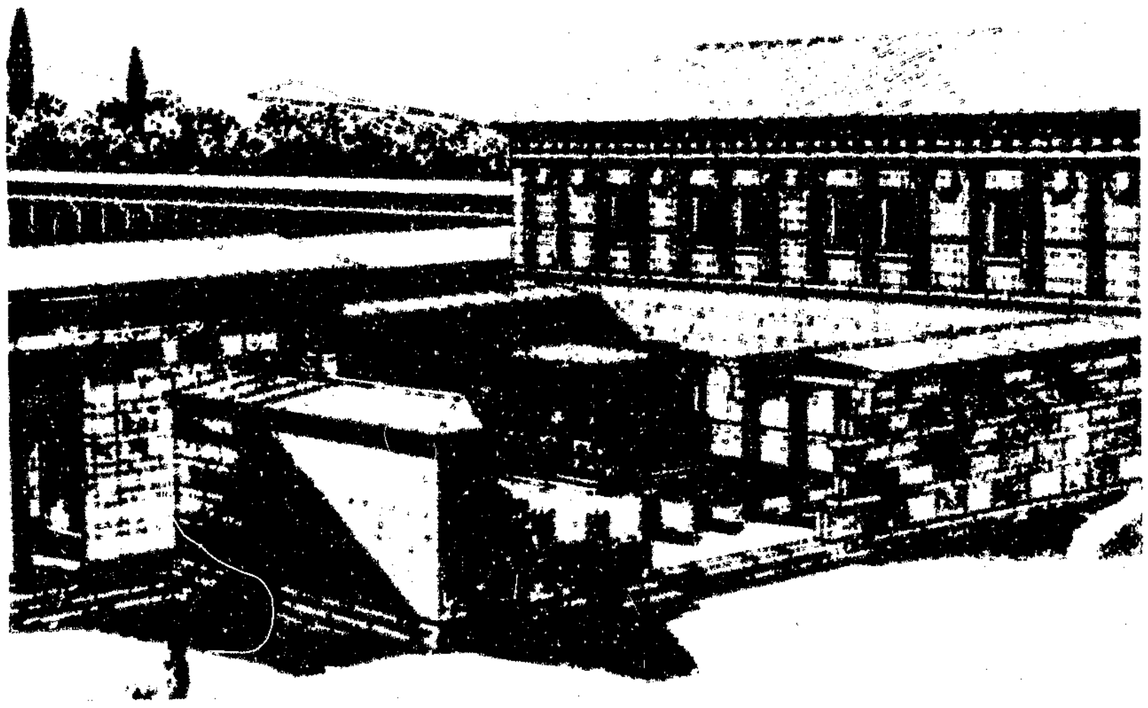
Figure B.4. : Housing at Olynthus, after 432 BC.
Source : Gardiner, H. (1980) Art through the Ages. p. 153.

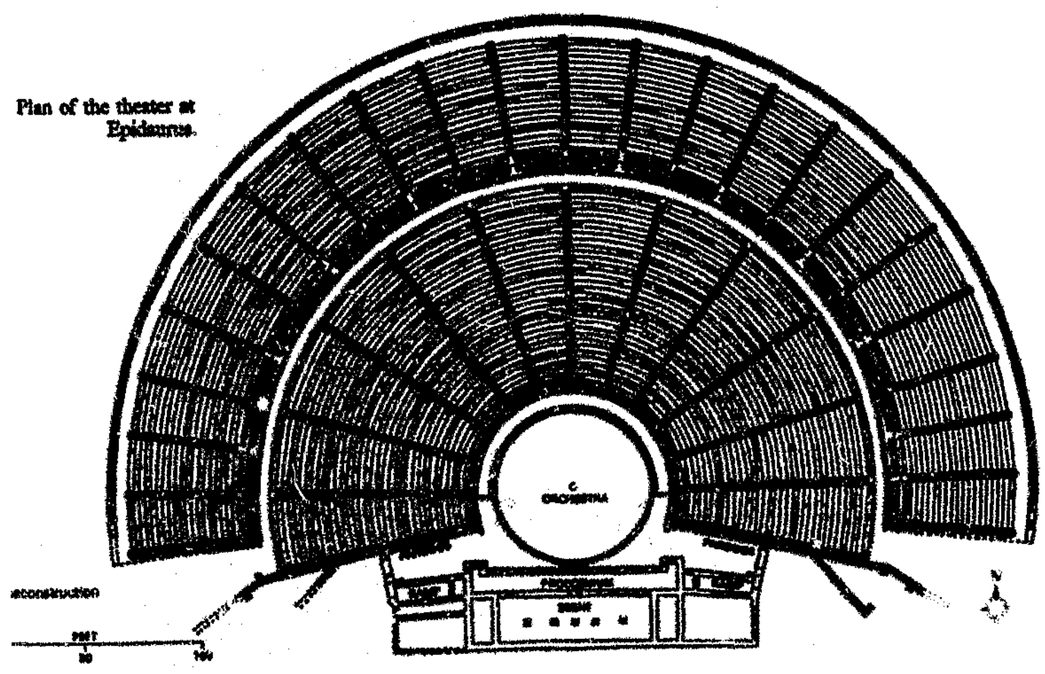
Groups of houses were arranged in rectangular blocks and thus incorporated into the Hippodamian grid pattern. An increasing interest was evident in the design of interior spaces, together with an increasing concern for utility and convenience in the daily life of the individual. A central feature of the individual houses was a spacious central courtyard with verandahs. The typical Hellenistic house was enclosed by a wall in order to ostracize the dirt and noise of the narrow street. A single door opened into an office, or service quarters, from which a covered passage led to the main unit through a courtyard into which opened roofed chambers. The wealthier residents had, in addition to the forecourt (similar to the Roman atrium) a colonnaded garden, namely the peristyle. Residential areas could be planned or organic in nature, as evident when comparing Priene with Athens, respectively.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
- Religious	Initially, the significant buildings of the Greeks were primarily simple shrines to protect the statues dedicated to their gods. The Classical Greek Temple. e.g. the Nereid Monument, (c400 B.C.) in which the post and lintel system was utilized, and later refined to its highest aesthetic levels. A peripteral temple, namely the Parthenon (447-438 B.C.), which is Doric in character and geometric in configuration, achieving a sense of balance through symmetry. Internal harmony is achieved through the regular repetition of unvaried form. The balance of forces is classical (i.e. perfect) achieved through a sophisticated understanding of perception. The parthenon was the perfect incarnation of classical characteristics, namely, convention, order, balance, idealization, simplicity, grace and retained vitality intermingled with the divine.

Figure B.5. : The Parthenon (447 - 438 BC).
Source : Sporre, D.J. (1987) A History of the Arts, p.85.

Greek temples where of three orders, namely Doric, Ionic and Corinthian. The Hellenistic modification of the classical style was designed to produce an overwhelming emotional experience. e.g. the Temple of Olympian Zeus (174 B.C.-A.D.130). The notion of verticality utilized in the religious buildings serves to emphasize the concept of religious aspiration. eg. in the Hera temple in Paeatum one was brought close to the earth in accordance with the character of the goddess as a result of the strong entasis of the columns, whereas in the temple of dominance and strength of the god.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
-Administrative/Civic	A pattern was established in which rule was initially by kings, then by nobles, then by tyrants who seized personal power. Ultimately, a dynamic balance was achieved, namely democracy, in Athens. The stoa and the bouleuterion were very important for the life of civic organization. The bouleuterion was the meeting place of the city council, which required a large roofed and enclosed space in which the lines of sight were uninterrupted and the acoustics were good. e.g. the bouleterion of Miletus, in which these problems were resolved.  **Figure B.6.** : The Bouleterion of Miletus, late 3rd century. **Source** : Gardiner, H. Op. cit. p.152.
-Political	Citizens would congregate under the covered colonnades (stoas) that surrounded the city's central market place (agora), to discuss the latest political development or a new philosophical idea.
-Historical/Monumental	Evidence of commemorative monuments, e.g. the monument of Lysicrates (334B.C.) which memorialized a victory in a contest of song. The Hellenistic Period - the Altar of Zeus, Pergamon, (c175 B.C.), was erected to glorify the victories of Attalus I, with the representation of historical events in mythological disguise.
-Educational	Rational moral was taught in the stoa - later known as the philosophy of the Stoics.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
-Recreational	Theatre productions were part of three yearly religious festivals, namely the City Dionysia, Rustic Dionysia and Lenaea. The Greek theatre was composed of a large circular orchestra (the acting and dancing area) with an altar at its centre, and a semi circular theatron (the auditorium or viewing place), usually occupying or incising into a hill. A skene was later added for costume changes, resting, etc. The Late Classical Period - the Theatre of Epidaurus (c350 B.C.) is an example of the sophisticated dexterous planning of uncovered space, while possessing all the functioning units and the formal arrangements of later theatres. The building arrangement enabled for the maximum convenience of view of the performance and the preparations of the actors. Plan of the theater at Epidaurus.  **Figure B.7.** : Theatre at Epidaurus. **Source** : Gardiner, H. Op. cit, p.151.
-Retail	Markets housed within the roofed stoas which surrounded the agora.
-Commerce/Office	Offices were also found within these stoas, surrounding the agora.
-Multifunctional/Mixed use	Cities were built and rebuilt in accordance with the pattern of the Greek polis, each with its own temple, assembly hall, theatre, gymnasium, stoa and agora in confirmation with the Greek orders of architecture.
GENERAL i.t.o built form	
-Scale and Mass	Scale was primarily based on human measurements. Hellenistic Architecture exhibited an imperial scale with greater diversity and complexity.
-Materials	The earliest buildings were constructed of wood, which were later translated into the more permanent materials of limestone and sometimes marble. The availability of high quality marble was utilized in significant civic buildings contributing towards the processes of city building, and enabling Greek architecture to attain high standards of perfection.
-Walls and facades	Colonnaded facades and arches were definitive elements enhancing cohesiveness and legibility within the public realm.
INFRASTRUCTURE	
MOVEMENT (physical connections)	

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE GREEKS 1230 BC - 100 BC
Movement as a consequence of form	E.g. the Panathenaic way which was part of a system of regional movement which linked some of the most sacred places in Greece. It served as both the sacred way and was also the main street of Athens. It was the central spine along which occurred the principal mercantile, industrial and political activities which made up the life of the city.
Movement as a generator of form	Hellenistic Period - the superimposition of the Hippodamian grid scheme, without any regard to the nature of the terrain. The major ordering principles of the Hippodamian plans were the rectangle and the relationships among the rectangles.
VIEWS, VISTAS AND SKYLINES (visual connections)	The Acropolis is set upon a towering platform of rock, which enhances the striking panoramic view of the surrounding hills and mountains.
ORIENTATION	
NATURE	An attempt was made for buildings and towns not to overwhelm nature, but complement nature. The topography exhibited an emphatic function in terms of significance within in the public arena. A harmony was evident between the built environment and the natural settings.
FLOORSCAPE (surface contours and materials)	

Figure B.8. :
Source : Gardiner, H. Op. Cit, p.129.

INFLUENCES	THE GREEKS
- Technology	Use of metal cramps in the horizontal course of the blocks of stone, and metal dowels in the vertical course, brought about a movement away from the heaviness of columns and the close spacing of columns (which was typical of the Archaic Doric style).
- Political life	Discussion among the citizens of Athens resulted in an intense political and intellectual life within the Greek city state.
- Ecclastical	
- Secularism	The interpretation of the world in terms of reason as opposed to religion, which began with a transformation of the worship of nature. In the Hellenistic world the theme of suffering is pervasive. During this period the adaptation of space to serve human uses is obvious.
- Concentration of power political economic religious	Athens was an active business city. Citizens congregated in the agora to discuss various political developmental issues and ideologies. The Athenians became a dominant political force in the Greek world, after defeating the Persians in 480 BC, which brought about a new optimistic spirit in Greek life. These victories over the Persians, supplied the motive for a renewed interest in city building processes, and the other factor was the opening of the Pentelic marble quarries. During the Hellenistic period Athens becomes a "world" civilization.
- The Power Hierarchy	The palaces display wealth and adventure, being protected by naval power and surrounded by the private homes of the aristocracy and religious leaders. The different people of Greek civilization tended to be united through a common language. Early developments in Athens revealed a succession of rulers together with the emergence of a form of democracy. The Greeks were slave-owners, who contributed to various city building processes. The use of slave labour enabled citizens to have ample leisure time for intellectual discussion and collective activities. In these times, the ruler (or tyrant) possessed considerable power resulting primarily from land ownership. Slavery was also evident in the fourth century BC. The notion of the polis was promoted which was based on the interests of the community as opposed to the interests of the individual. By the fifth century BC Athens exhibited the foundations of an almost pure democracy, in which political decisions were made by the majority of the citizenry (in principle). The parthenon was an example of city building in this period. During the late fifth and early fourth centuries, a more powerful middle class arose (after the defeat of the Athens by Sparta) promoting ideas of idealism, intellectualism and emotionalism which can be perceived in the artistic energies of the period, eg. the Discobolus (c.450 BC) and various other sculptural forms from the pediments of the Parthenon. The Acropolis typifies the idea of idealism through the embodiment of the characteristics of balance, order and restrained vitality, and the idea of intellectualism is typified through the harmony which mingles earth and the divine. Greek religion was primarily based on a large family of Olympian gods of superhuman gods. Greek mythology and art represented the gods in human terms, implying that humans could by god-like. In the middle of the fifth century BC the promotion of "man as the measure of all things" was clearly evident in the products of the city building processes through the constant utilization of human dimensions in the built form. Differences occurred between the major philosophies of Plato and Aristotle, where Plato focuses on the degree of aesthetic value. After the death of Alexander the Great in 323 BC, the Empire began to crumble. Prior to this the empire was divided into kingdoms, followed by a series of wars for supremacy which resulted in the emergence of three rulers. Prosperity reigned throughout the Hellenistic world as evident the various examples which promote grandness and complexity in city building eg. The Corinthian Temple of Olympian Zeus (174 BC - AD 130), in which the appeal to the emotions overtook the appeal to the intellect. As the Hellenistic period downed the simplicity of city building (eg. the Doric Parthenon) was replaced by the complexity of city building (eg. the Corinthian Temple of Olympian Zeus. During the prosperous periods of Greek history numerous examples of city building exist which reinforce the dominance of the rulers, who would probably be responsible for the funding of these works and the provision of labour (slaves) for the manual work involved in the erection of various structures.

- Culture	The constants of Greek culture were man, nature and reason. The Greeks were influenced by the civilizations of Egypt and the Near East. The intermingling of different cultures had a significant influential result upon Hellenistic art. The interpenetration of Oriental and Occidental, of primitive and advanced ideas from the East(Persia) and the West(Etruria) influenced the evolution of Greek art.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
URBAN SPACE	
-Squares	The Piazza has become an important public space, being enclosed by houses with a fountain or landmark symbolizing the centre of the space. eg. Piazza Navona. The piazza may be planned or it may be the result of historical growth, which crystallizes as an enclosed figure.
-Streets	The Republican Period - Streets surrounding the civic centre were narrow and confined. The pedestrian was however incorporated into the street design, with the provision of stepping stones at pedestrian crossings which halted vehicles. Most intersections also possessed continuously flowing public fountains, in an attempt to cater for human convenience. The Roman street unifies the houses, being an "urban interior" where life takes place in the complete sense of the word, which often links up with or becomes a piazza. The self-satisfied, enclosed world of the street is the characteristic quality of old Rome. Enclosure and continuity and qualities which define the street which are determined by the lack of sidewalks and stairs in front of the entrances.  **Figure C.1.** : The Ancient Roman Street. **Source** : Norberg - Schulz, C. (1980) Genius Loci, p.140. Early Imperial Period - Most of the roads found their symbolic destination in such overwhelming works as the Colosseum. The Late Empire - axes often dominated plans as in the plan of Spalato (AD 300-05) where the ceremonial axis dominates the layout.
- Parks and Gardens	In the suburban and country villas, formal gardens were incorporated into the design. Beyond these formal gardens there were meadows whose purpose was primarily that of natural beauty. The notion of the park merging into the natural landscape, was a Roman idea.
- Vacant Land	
- Meeting Place	The forum (a rigidly, rectangular, axially planned heart of the city) - around which stands a covered market, a warehouse or granary, a triumphal arch, a comitium where municipal elections were held, and a basilica, which tended to be of a multifunctional nature (such as the Basilica Ulpia, AD 112).

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
INDOOR/INTERIOR SPACE	Early Imperial Period - where the significance of interior space was stressed, as conceived in the Basilica Ulpia (AD 112), which is experienced from within and not externally. The Pantheon (AD 125) is another example where the effect of space is stupendous. The interior os covered by a hemispherical dome which is dramatically pierced by an oculus. The interior is an exhilarating , unified, self-sufficient whole, uninterrupted by solids and providing a link with nature and the gods through the oculus.

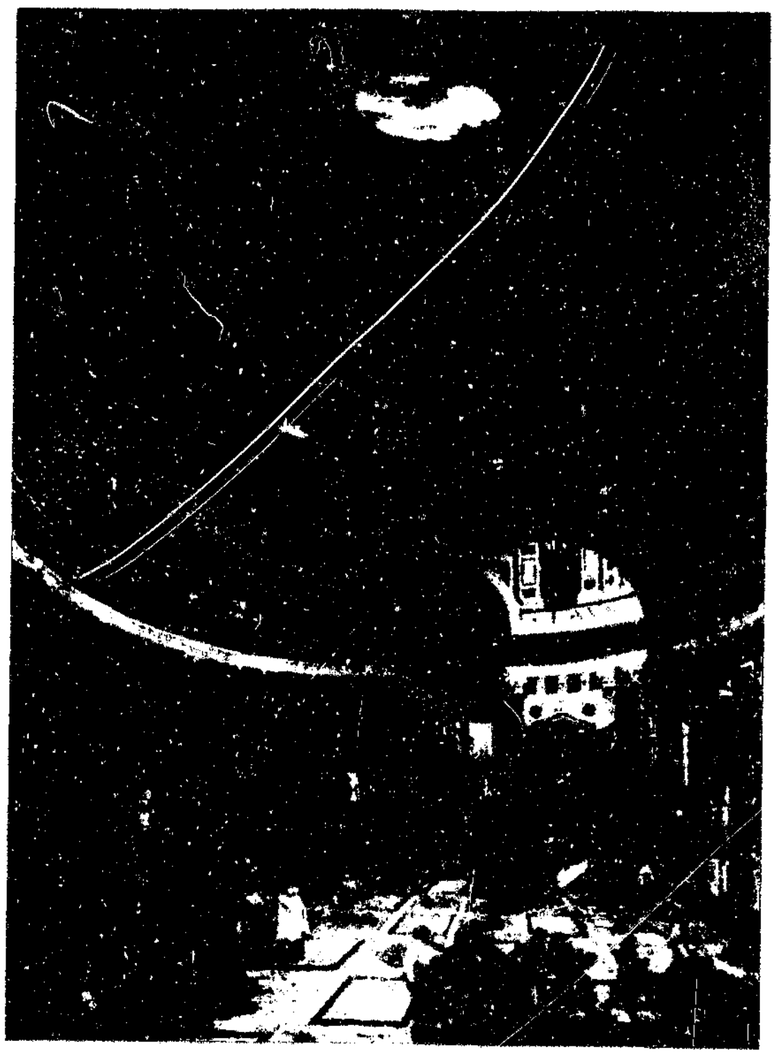


Figure C.2. : The Pantheon, (AD 125).
Source : Sporre, D.J. Op. cit, p.147.

The Colo. eum (AD 70-82), exhibits an integration between the interior space and the various units of design, through the horizontal and vertical repetition of positive and negative spaces.

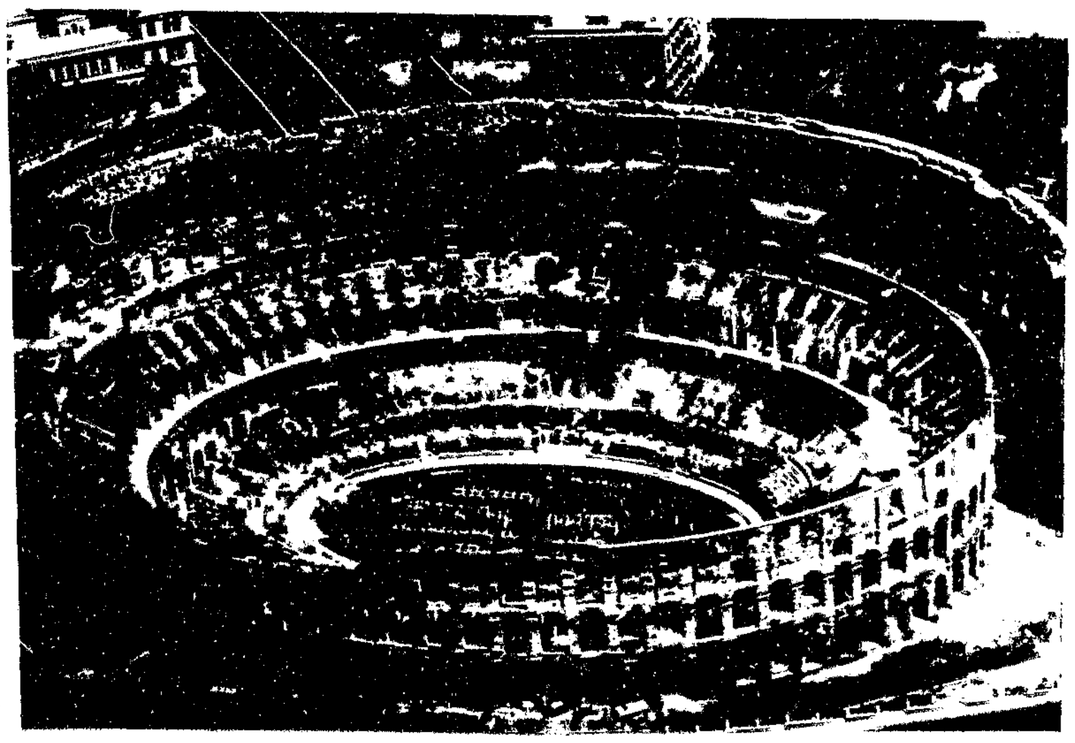
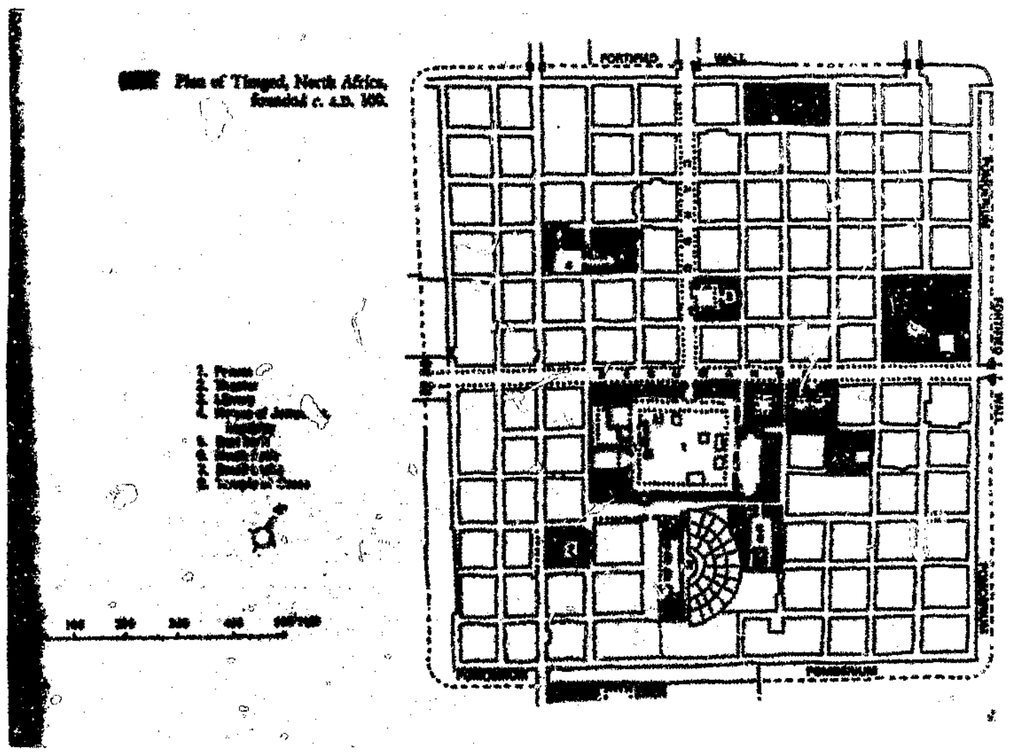


Figure C.3. : The Colosseum (AD 70 - 82).
Source : Sporre, D.J. Op. cit, p.145.

The Late Empire - the interiors during this period were richly marbled and stuccoed as in the Basilica of Constantine (cAD 310-20), they were spacious, fully illuminated and uninterrupted by vertical supports.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
INTERFACE	The Republican Period - the residential dwellings had complete privacy, with minimal doors and windows which emphasized the notion of the wall as a barrier.
CITY PLAN (layout)	A well - planned system of roads and harbours, which were interconnected to other Roman cities. Roman settlements were usually laid out in a regular manner based on a military encampment (or castrum). The basic pattern comprised a square which was divided into equal angles in the centre. The north south axis was called the cardo, the east west axis was called the decumanus and adjacent to the intersection of these two axes the forum was located which was separated from vehicular traffic. The uniformity of this type of layout promoted administrative efficiency. Palestrina is a good example where the cardo-decumanus scheme was utilized on a monumental scale. The cardo-decumanus scheme is an important component in the emphasis of the Roman genius loci.  **Figure C.4.** : Plan of Timgad, North Africa (cAD 100). **Source** : Gardiner, H. Op cit, p.187. An exception to this military layout is Pompeii which exhibits the irregular plan of a growing city, i.e. organic in terms of layout.
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Residential	Republican Period - Residential dwellings were situated behind shops which flanked the street. The wealthier residents lived in atrium type town houses. e.g the House of Pansa (second century BC) which stood level with the sidewalk. Early Imperial Period - the introduction of the suburban villa which was occupied by the richer families, in reaction to the rapidly growing city population. In the city, multistorey apartment blocks (insulae) with communal latrines and other facilities were built, in order to accommodate the increasing population. e.g.in Ostia most of the inhabitants were housed in these apartment blocks.

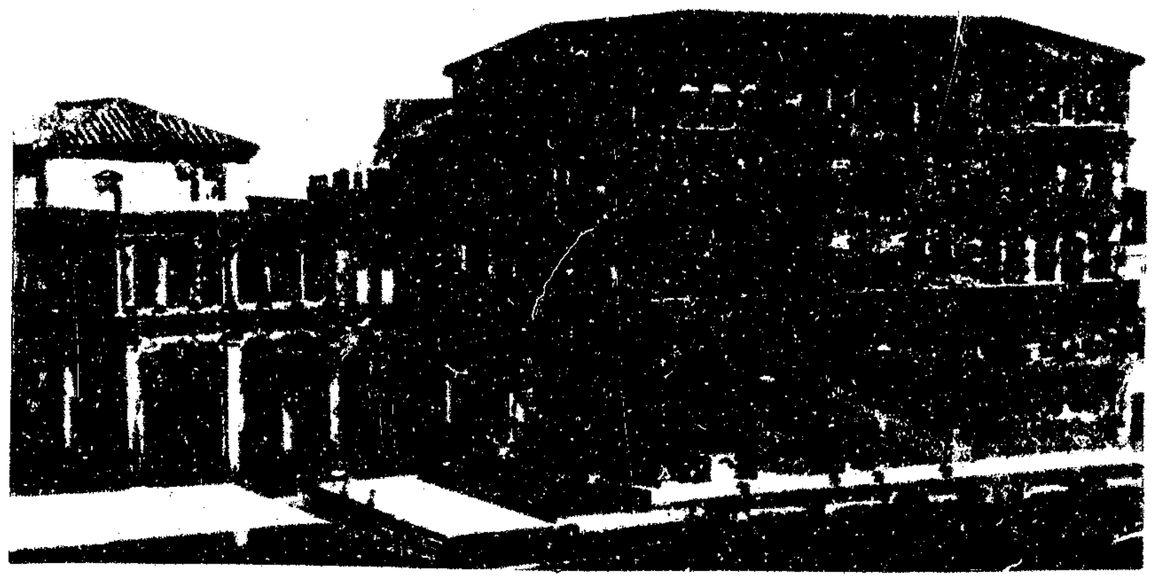


Figure C.5. : Reconstruction of an Insulae, Ostia.
Source : Gardiner, H. Op. cit, p.186.

A wide variety of single houses (those of bankers, merchants, tradesmen, artisans, etc) were located in close proximity to bakeries, brothels, and bad smelling industries, thus reflecting a loose social structure.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Religious	Republican Period - temples tended to be modelled upon previous Etruscan and Greek examples, e.g. the Temple of the Sibyl (early first century BC), which was a pseudoperipteral structure, exhibiting a superficial resemblance to Greek architecture (monolithic columns on a great scale, the frieze is symbolic of fertility).  **Figure C.6.** : Temple of the Sibyl. **Source** : Gardiner, H. Op. cit, p.169. An increasing interest for colossal Hellenistic designs as evident in the great size of the Sanctuary of Fortuna Primigenia, c. 80 B.C., which was a symbolic and ostentatious display of power and dominion. The temple of Fortuna Primigenia together with a statue of Fortuna, forms part of an axial scheme, which functions as a cardo. Below the sanctuary the Sacco valley, crosses the cardo, like a decumanus. Thus, the cardo-decumanus scheme is reinforced in the natural surroundings, not only in the street layouts of the city. The Capitolium, Pompeii - is a large temple, raised on a podium in dedication to the three gods who protected Rome and her colonies. The Pantheon (AD 117-138) was dedicated to all the gods, consisting of a traditional rectangular temple - front portico and an enormous domed rotunda (symbolic of the heavens). (See figure C.2.). However, it marks a break with the traditional form of Roman temple, during a period of religious speculation and exploration (a growing interest in Eastern mystery cults was evident).
- Administrative	Public buildings were seen as an expression of the dignity and diversity of the state. The Republican Period - the civic authority of the time was represented by the triple hall of the Curis (city council), whereas the seat of law and business was reflected in the Basilica. The forum which was the focus of the town and the container of the functions of a religious, commercial and administrative centre.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Political	In the development of Roman architecture politics played a greater and more influential role than religion. The Romans focused on the construction of imposing and utilitarian civic structures. The forum of Pompeii - an important example of an early Roman civic centre, which is separate from major traffic arteries, restricting the entry of vehicles.

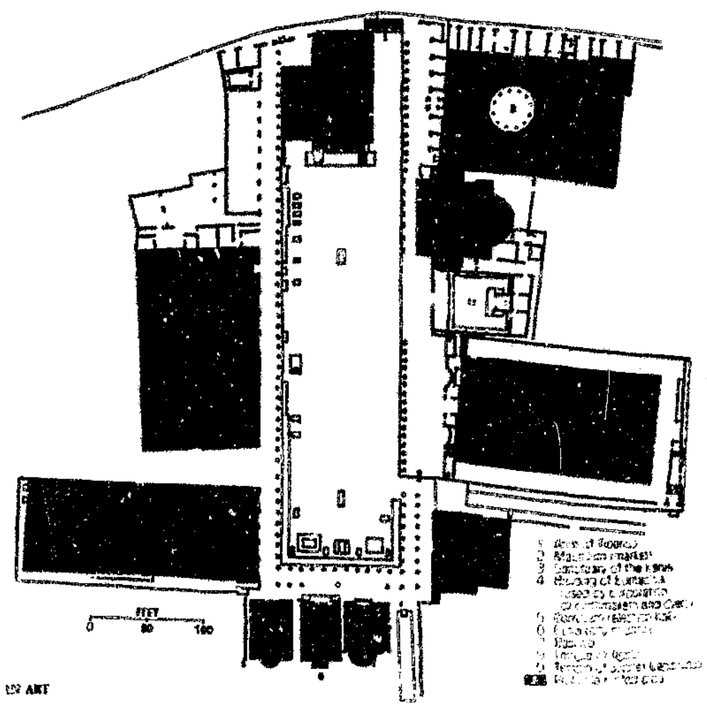
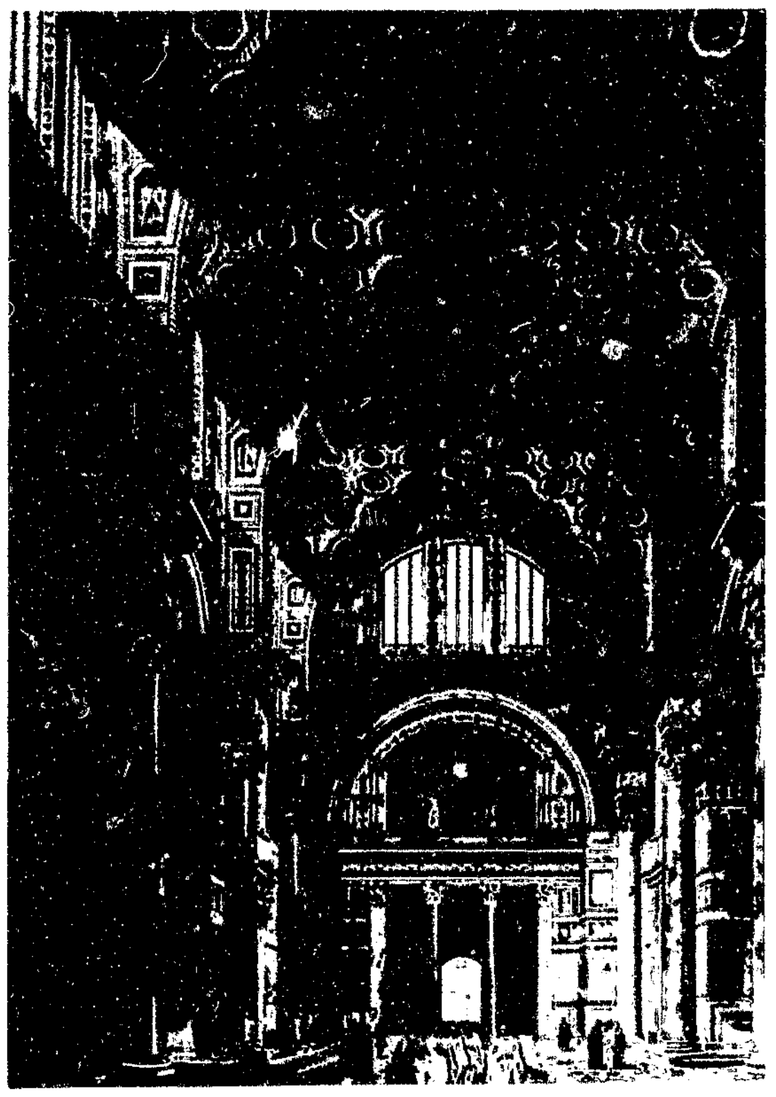


Figure C.7. : Plan of the forum of Pompeii.
Source : Gardiner, H. Op.cit. p.172.

The Late Empire - The city of Rome became a walled fortress, as a result of various insecurities. Militaristic thinking was evident in Roman society, with the fusion of military with imperial palace architecture. Increased centralization and standardization of elements of militaristic thinking were reflected in the plan of Spalato (AD 300 - 305), with the utilization of symmetry, axiallity, and unity of direction. The Roman army became a powerful institution, due to the dependency of Roman expansion and conquest on strong military power.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Historical	Early Imperial Period - There is a tendency for the Romans to utilize actual historical events in the various architectural forms as opposed to the Greeks who relied on historical events which were mythological in nature e.g. the various friezes of the Ara Pacis (13 - 9 BC). Commemorative monuments e.g. The Column of Trajan (AD 113), which records the two successful campaigns against the Dacians.  **Figure C.8.** : The column of Trajan. **Source** : Gardiner, H. Op. cit, p.198. Truth to appearance is stressed, thus narrative fact rather than visual fact is required. Late Empire - The Arch of Constantine (AD 312 - 315) commemorates a victory over the rival.
- Educational	Tertullian's influential writings examined human psychology, relying heavily on Stoicism (initially formulated by the Greeks). St. Augustine (354 - 430) was another influential writer in the development of Christian thought.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Recreational	The Amphitheatre and public baths in Pompeii. The Early Imperial period - The Flavian Amphitheatre, renamed the Colosseum AD 70 - 82, was originally utilized for the staging of gladiatorial combats and carnal displays. A great deal of technical ingenuity has been involved in the management of architectural space to fit the variety of complex functions. The Colosseum also reveals the Roman talent for the correlation of public and private convenience within large - scale service structures which required the enclosure and spanning of vast spaces. The Colosseum was constructed in the sacred valley between the hills. Its centrality on the axis and its oval suggest that it was intended as a "world theatre" where all citizens of the Empire could congregate. (See figure C.3.). Baths of Caracalla (AD 215) - provided spaces for intellectual and physical recreation, and leisure. The baths were social centres as well as cultural centres (with the provision of libraries), being an indispensable part of Roman civilization. The baths attracted the upper classes, in an attempt at restoring ones physical health.  **Figure C.9.** : Baths of Caracalla (AD 215). **Source** : Gardiner, H. Op. cit, p.193.
- Retail	Republican Period, e.g. the Via dell' Abbondanza, where the streets were lined with shops, offices, taverns, bakeries, etc.
- Commerce/Office	
- Industrial	

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Multifunctional/Mixed Use	The Via dell' Abbondanza, where the streets were flanked by various commercial activities, being interrupted by gateways filtering into private residences, which spread out on the back of the shops and which were totally isolated from the commercial activities of the street. The Early Imperial Period - the Basilica Ulpia (AD 112) was a public hall, accommodating a variety of business functions. It was the locale of stock exchanges, law courts, business offices, administrative bureaus and civic services. It consisted of broad, uninterrupted architectural spaces, for the ease of human transactions.

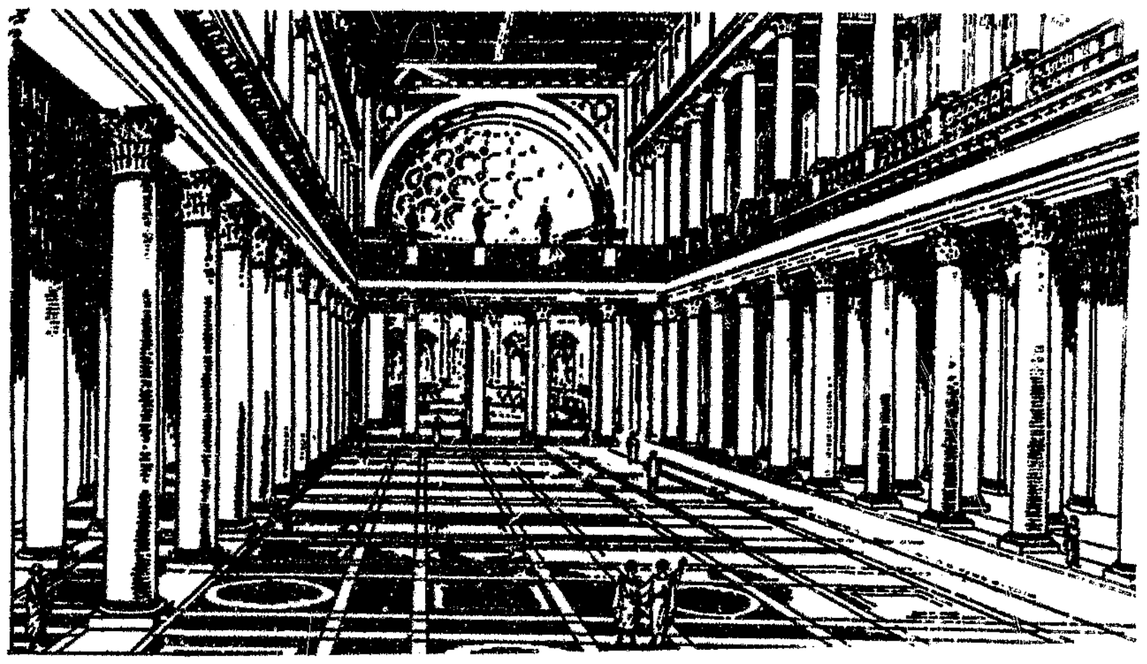
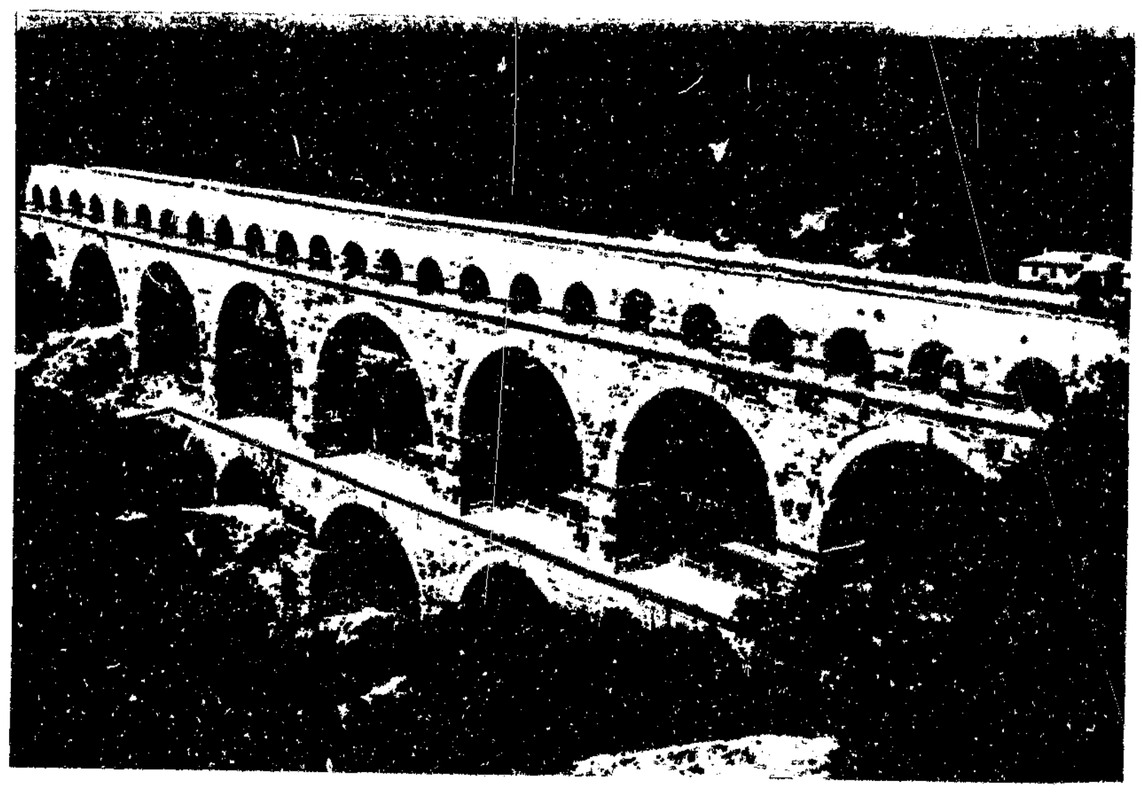
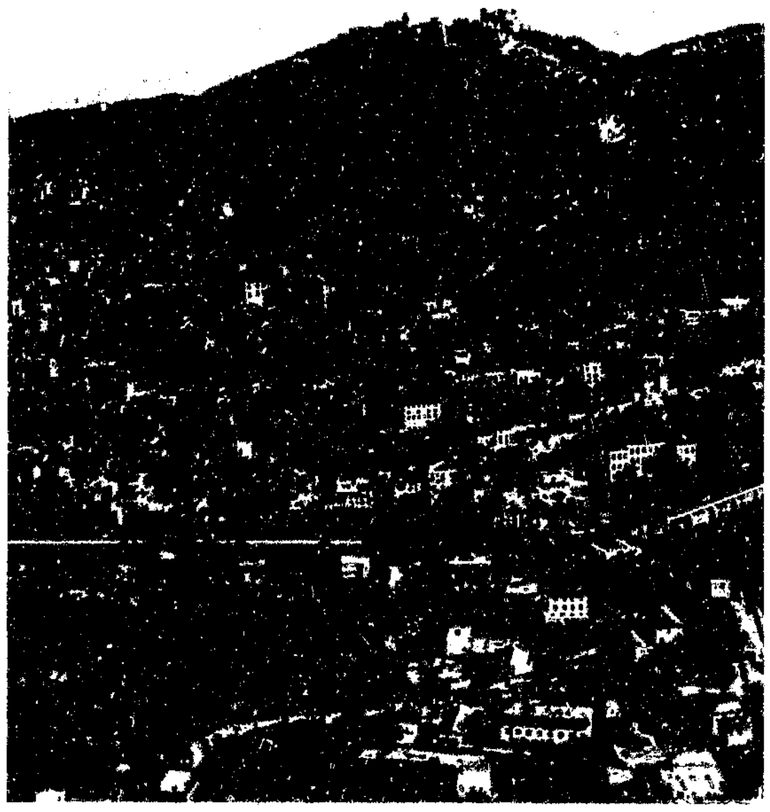


Figure C.10. : The Basilica Ulpia (AD 112).
Source : Gardiner, H. Op. cit, p.190.

	Trajan's Market (cAD 98-117) was a mixed use facility consisting of +150 shops and offices on three different levels connected by streets and steps together with a vast covered market hall.
- Public Works	Early Imperial Period - construction of public baths throughout the various quarters of the city, which were equipped with highly developed heating systems. The imperial forums were erected as ostentatious glorifications of imperial power.
GENERAL i.t.o built form	
- Scale and mass	The Romans utilized a set of proportions which harmoniously related various parts of the built form to each other, but not necessarily to human proportions. The Colosseum is an example of absolute architectural scale. (See figure C.3). Monumental simplicity and grand scale are evident in the Pantheon (AD 125), in which architecture is conceived in spatial terms, being shaped by enclosures. The basic properties of the Roman genius loci are reinforced in the Pantheon, through the great conception of interior space, enclosure and axiality, together with the unification of earth and heaven which is further emphasized through these various themes. (See figure C.2.). The Late Empire - a grand scale is evident as exhibited in the Spalato (AD 300 - 305). The Basilica of Constantine (AD 310 - 320) was designed on a grand, imperial scale.
- Materials	The Late Empire - highly malleable, versatile, fireproof materials were utilized in the Basilica of Constantine (AD 310- 320). For the Romans marble was perceived as a symbol of magnificence. The extensive utilization of marble was made possible by the opening of quarries in the Apuan Alps. However, more significant than marble was the utilization of concrete which radically changed arch and vault architecture e.g. the Pont du Gard. (first century BC).

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
- Walls and Facades	Rubble concrete, often faced with marble slabs, plaster, or ornamental stone or brick work. Early Imperial period - face brick utilized in the multi storey apartment blocks (insulae).
INFRASTRUCTURE	Early Imperial Periods - many individuals were dependent upon the government for the provision of most services, such as food distribution, water supply, sanitation, recreation, entertainment, bridges, roads and protection. The administration of these services was highly efficient. Impressive engineering skill as seen in the Pont du Gard aqueduct (first century B.C.) which carried water to Nimes over a distance of 30 miles and provided each inhabitant with approximately 100 gallons of water a day.  **Figure C.11.** : Pont du Gard (First century BC). **Source** : Gardiner, H. Op. cit, p187.
MOVEMENT (physical connections)	The segregation of vehicles and people, is evident in the forum of Pompeii.
Movement as a consequence of form	
Movement as a generator of form	The grid which promoted efficient movement, was a significant generator of form, which was further influenceby the cardo-decumanus scheme. Roman cities depended greatly on movement with accessibility being a main siting requirement (thus, the Romans often opted for river crossings and route intersections as locational sites).
VIEWS, VISTAS AND SKYLINES (visual connections)	The cardo-decumanus system was frequently utilized in the natural landscape to reinforce and enhance visual connections, as evident in the sanctuary of Fortuna Primigenia, which incorporates various elements into a scheme of axes (cardo) which intersect with the Sacco valley (decumanus).
ORIENTATION	The cardo and decumanus arrangement provided the basic orientation and layout of the town.

ELEMENTS OF THE PUBLIC REALM	ANCIENT CITIES - THE ROMANS 753 BC - 300 AD
NATURE	A heightened sense of the relationship between architecture and landscape is evident in the design of Roman temples and sanctuaries. e.g. the Sanctuary of Fortuna Primigenia at Praeneste (c. 80 BC) which was architecturally moulded into the adjacent hillside. A closeness to nature is evident in the city, together with the humanization of nature. At Palestirina a "cosmic" order is evident in the landscape itself, enhancing the notion of genius loci.  **Figure C.12.** : Palestrina. **Source** : Norberg - Schulz, Op. cit, p.233.
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE ROMANS 753 BC - 300 AD
-Technological	High engineering skills were utilized for the construction of bridges, roads, sewers and aqueducts. The vast body of Roman art which has been found, suggests that mass production methods must have been utilized. The use of concrete (a mixture of lime-mortar, water and volcanic dust) was evident in the various architectural forms, which was developed in the second century BC. Concrete vaulting permitted the construction of vast spaces without interior supports. The Romans developed the arch, the vault and the dome, together with satisfying the problem of enclosing space whilst providing sufficient light. The process of change from the Trabeated (post-and-lintel) arch to the Arcuated(arch-column) arch begins in the first century as evident in the arcade of Spalato. The introduction of buttresses, which was necessary to reinforce the vaulting system, thus allowing for construction on a vast and grand scale. Development in new systematized construction methods facilitated the development of large-scale programs for utilitarian and civic structures - roads, drainage systems, bridges, aqueducts, vast apartment blocks and various kinds of public buildings.
- Political life	The Late Empire - In AD 285 internal unrest combined with attacks on frontiers by the new Sassanian line of Persian kings in the east and German tribes in the north bought the empire close to collapse. Diocletian, restored political order by dividing authority among four persons, the tetrarchs. Under Constantine, the empire was divides among his sons (Diocletian's system was rejected).
- Ecclastical	The occurrence of Christianity did not change the urban structure. (Norberg-Schulz, 1980).
- Secularism	Practicality was important.
- Concentration of power political economic religious	The Late Empire - increasing centralization and standardization was evident as a result of increasing insecurity.
- The Power Hierarchy	The city building processes of Rome were characterized by class struggles. In Rome the rich ruled by means of the Senate, with the citizenry being justified as little more than peasants, and the gap between these two sectors widened dramatically (particularly evident in the third century B.C.). Roman expansion was primarily based on military achievement (as evident in the militaristic city layout), which directly influenced the quality of life in Rome, which was dependent upon the wealthy of conquered regions. The continual state of war on the borders and the effectiveness of the government strengthened power and authority among the Senate, whilst reducing participation and franchise among the ordinary citizens. Politically, the territorial governors and generals were very strong and influential as a result of their acquired wealth gained in conquered lands. During the last century of the Republic and its Empire, various individuals came into power, namely, Marius, Sulla and Julius Caesar with various power struggles prior to the emergence of these individuals. In 44 B.C. Julius Caesar was assassinated, and thereafter the Republic remained stagnant for years.
- Culture	Etruscan and Greek influences were evident, even though Roman art came to have its own distinctive characteristics. It makes use of classical forms, while expressing neo-Classical concepts. The intermingling of different cultures is one of the essential aspects of Roman art.

ELEMENTS OF THE PUBLIC REALM	THE BYZANTINE PERIOD 330 AD - 1453 AD
URBAN SPACE	
- Squares	
- Streets	
- Parks	
- Vacant Land	
- Meeting Place	
INDOOR/INTERIOR SPACE	Early Byzantine - impressive and expansive, and intricately and lavishly decorated.e.g. the nave of Sant' Apollinare (c.AD 504). The combination of a semi circular interior with a polygonal exterior is typical for Ravenna churches, of Byzantine origin. In the Hagia Sophia, one encounters a tremendous, open space on entering the building, where the dome rides on a halo of light provided at the base of the dome. This light created a spiritual experience when entering the building. Light is the mystic element which defines space, becoming the agent which transforms the material substance of the building into an abstract, spiritual vision.

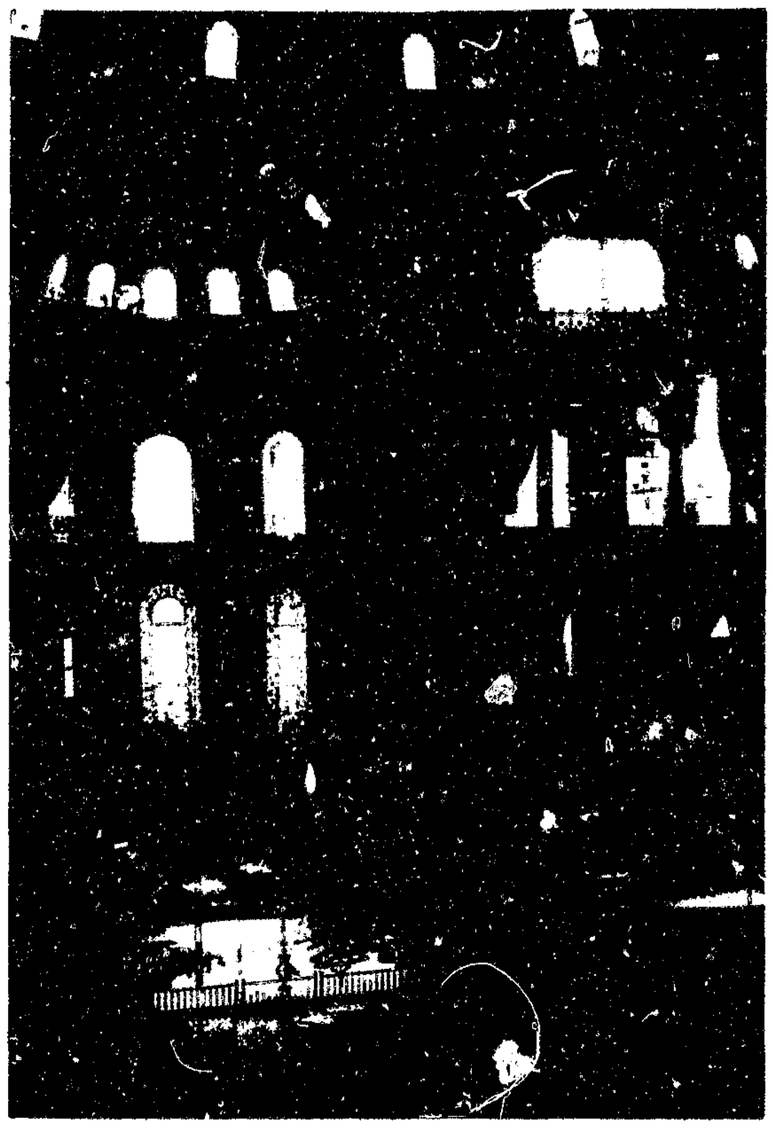


Figure D.1. : Hagia Sophia, Interior.
Source : Sporre, D.J. Op. cit, p.173

ELEMENTS OF THE PUBLIC REALM	THE BYZANTINE PERIOD 330 AD - 1453 AD
	Late Byzantine - e.g. the church of the Katholikon in which the interior creates a mystery out of space, surface, and light and dark, as in the earlier Byzantine buildings.  **Figure D.2.** : Church of Katholikon, Interior. **Source** : Gardiner, H. Op. cit, p.245. Late Byzantine architecture appears to aim for complex interior spaces that issue into multiple domes in the upper levels, creating an exterior view with spectacular combinations of round forms with shifting perspectives.
INTERFACE	Narthexes and side porches, influenced spatial and visual transition between the outer and the jewel - like interiors.
CITY PLAN (layout)	
BUILT FORM (relative to the public realm)	
- Residential	

ELEMENTS OF THE PUBLIC REALM	THE BYZANTINE PERIOD 330 AD - 1453 AD
- Religious	E.g. St. Clement, Ankara - whose form was described in a cross-in-square plan.

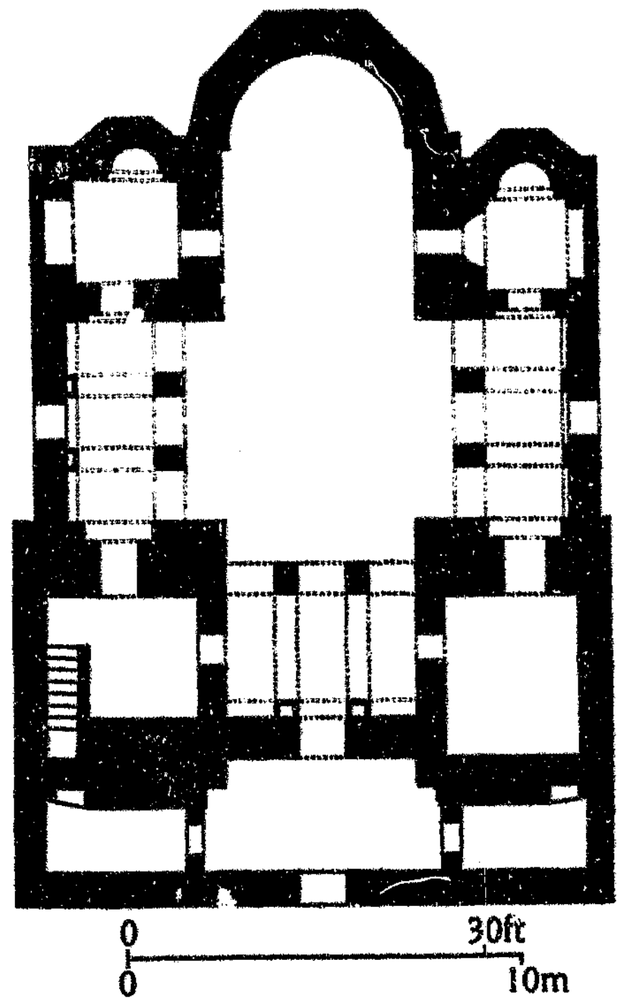


Figure D.3. : St. Clement Ankara, plan.
Source : Sporre, D.J. Op. cit, p.167.

St. Clement's employed classical principles of precise harmony of parts and suitability of composition to relate man to his aspirations. The built form has been inextricably united with symbolic forms. The Masoleum of Galla Placidia (AD 425-50) was a Basilican plan with a domed crossing. In this case religion becomes very regal in nature. The church of Holy Wisdom, Hagia Sophia, reveals the application of 'the dialectical principle of statement and denial'. The architecture of the Hagia Sophia shows the application of geometry to solid matter, aiming to conceal the solidity of matter.

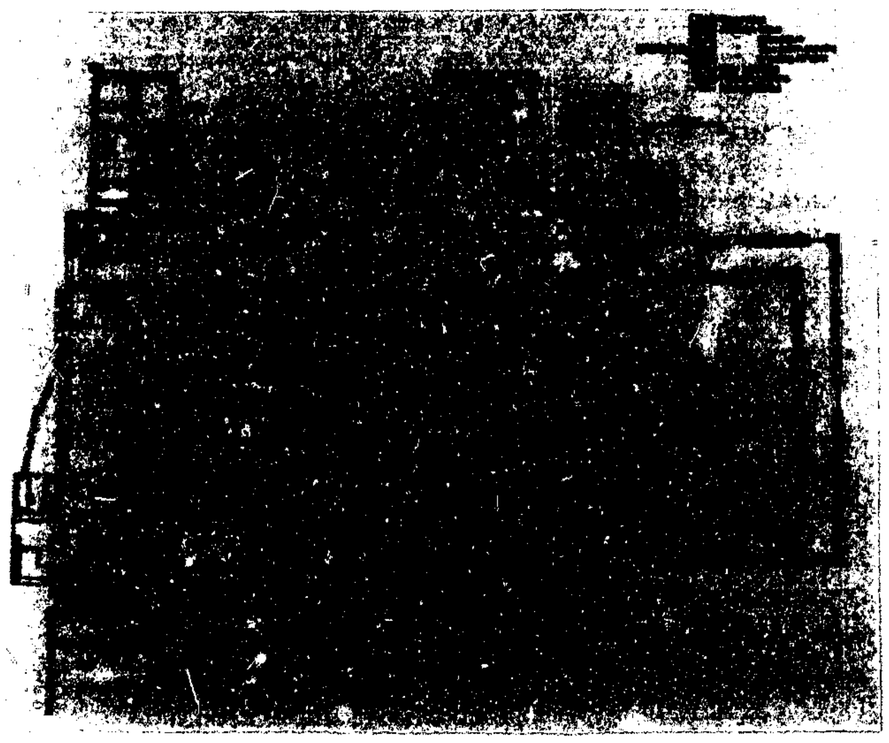


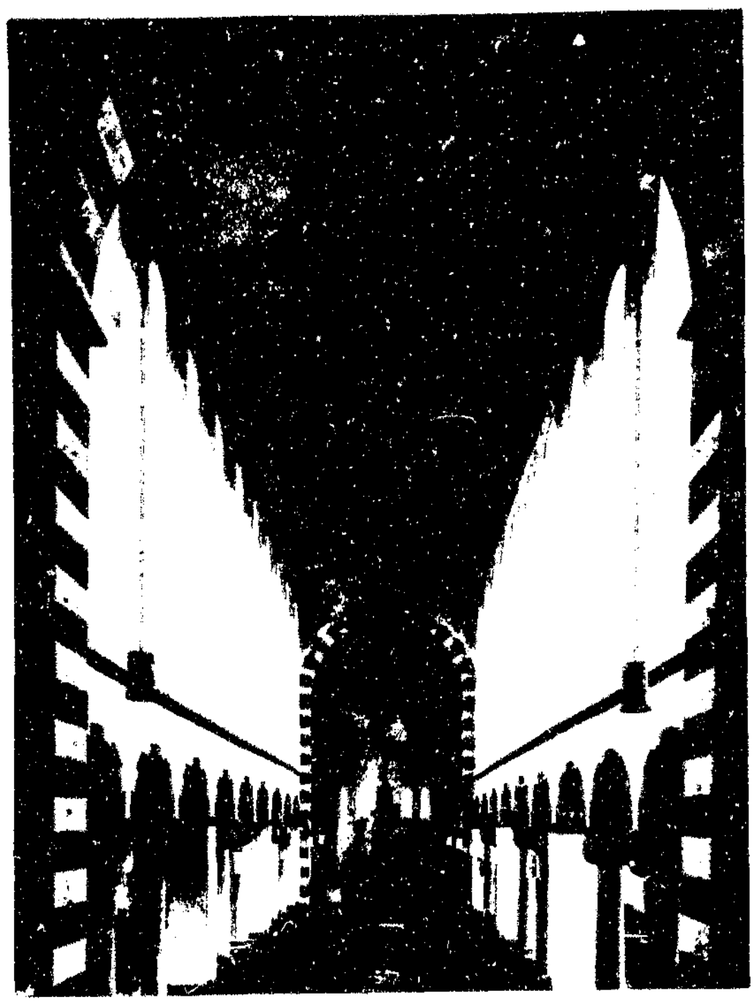
Figure D.4. : Plan of Hagia Sophia.
Source : Gardiner, H. Op. cit, p.243.

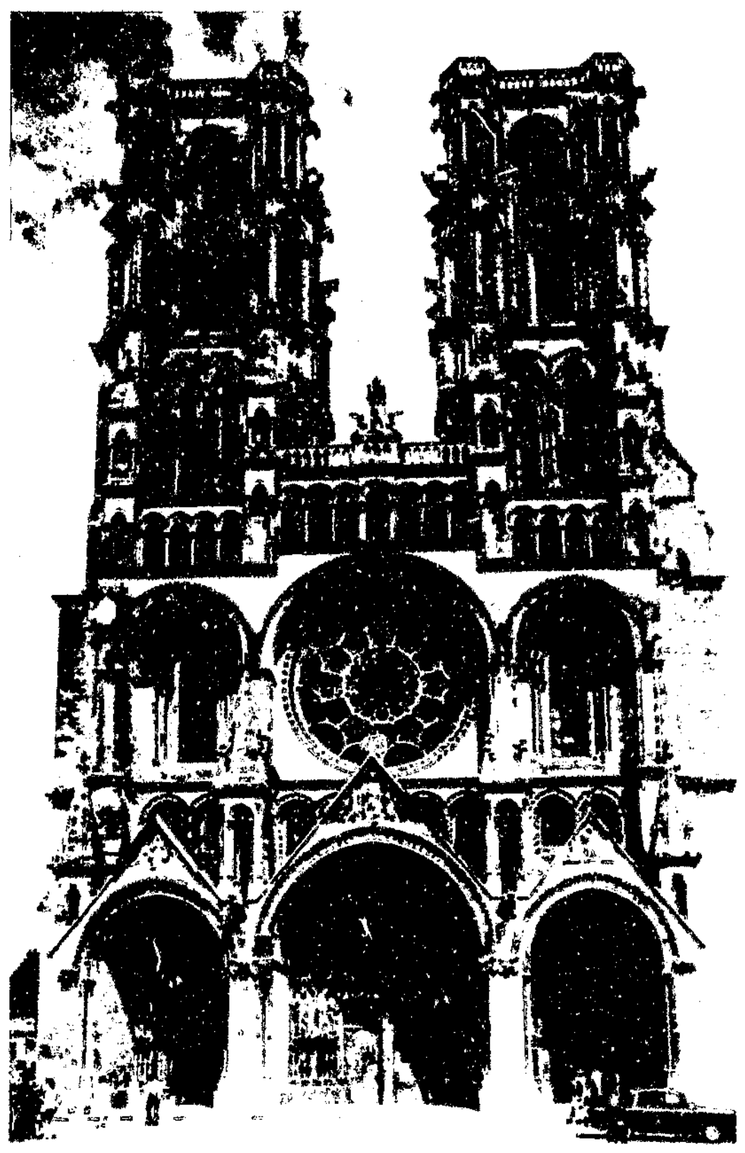
Hagia Sophia was built at the command of the Emperor Justinian with the aim of outdoing all other religious buildings.

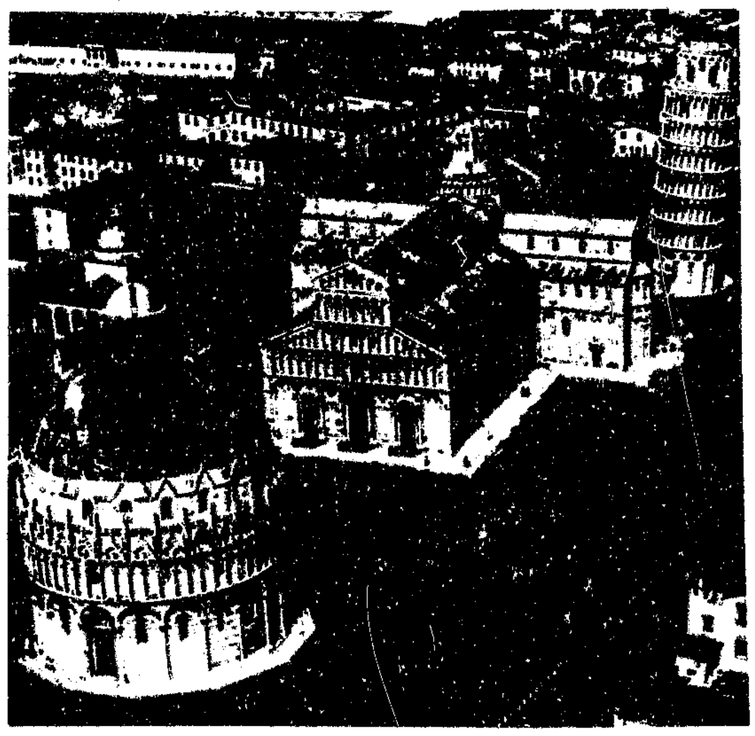
ELEMENTS OF THE PUBLIC REALM	THE BYZANTINE PERIOD 330 AD - 1453 AD
- Administrative	
- Political	The Palace became very significant. Justinian's patronage of architecture was to create a monolithic state with one set of laws, one religion and one ruler. During the conflict between the Iconoclasts and the Iconodules, palaces were opulently decorated.
- Historical	San Vitale in Ravenna, is the major Justinian monument in the West, and was probably built as a testament to Orthodoxy in the declining kingdom of the Ostrogoths.  **Figure D.5.** : San Vitale in Ravenna. **Source** : Sporre, D.J. Op. cit, p.168.
- Educational	
- Recreational	
- Retail	
- Commerce/Office	
- Industrial	
GENERAL i.t.o built form	
- Scale and mass	Grand scale and majesty expressed in the dimensions of the Hagia Sophia, AD.532-37. (See figure D.4.).
- Materials	In the churches, brick and/or stone were utilized, in an attempt to project elegance, while emphasizing the rising line of design.

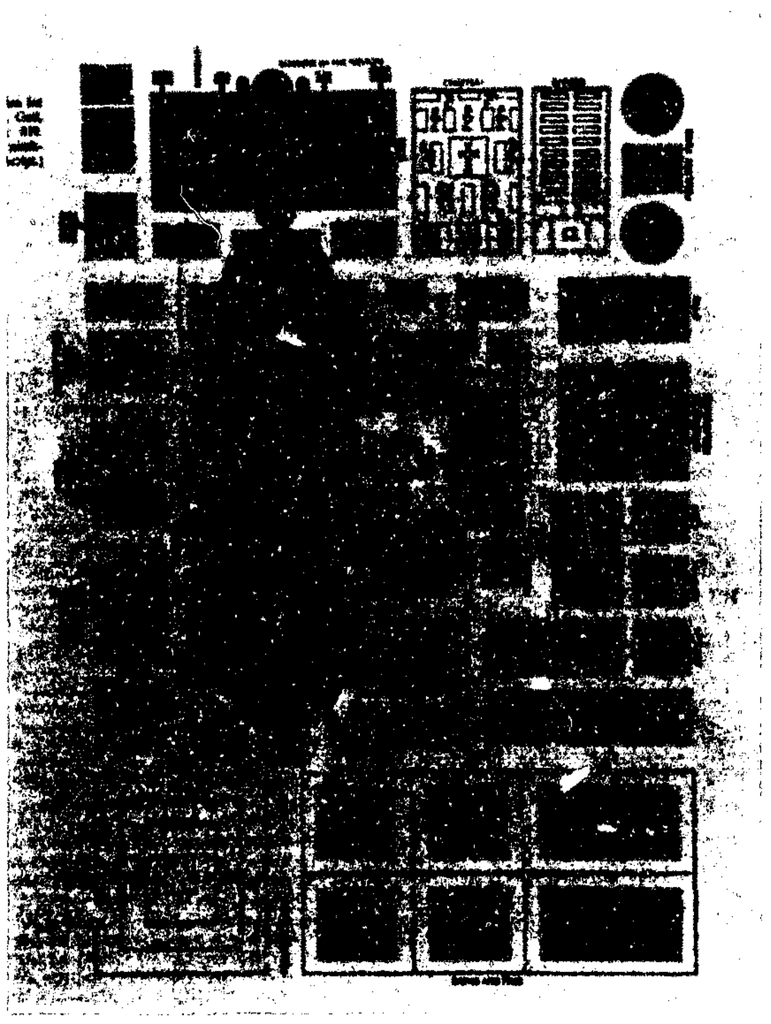
ELEMENTS OF THE PUBLIC REALM	THE BYZANTINE PERIOD 330 AD - 1453 AD
- Walls and Facade	Early Byzantine - no attention paid to the facade, as evident in the Hagia Sophia which is plain and unpretentious, however an emphasis and significance has been placed on the skyline.  **Figure D.6.** : Hagia Sophia (AD 532 - 537). **Source** : Sporre, D.J. Op. cit, p.172. Plain and unadorned exteriors are characteristic of the period (e.g. the Church of Sant' Apollinare in Classe). Late Byzantine - ornamentation is evident in the relief of the exterior wall surfaces. e.g. Church of the Katholikan.
INFRASTRUCTURE	
MOVEMENT (physical connections)	
Movement as a consequence of form	
Movement as a generator of form	
VIEWS, VISTAS AND SKYLINES (visual connections)	The skyline commands attention during this period, as in the Hagia Sophia, which was also built on a high ridge, and its dome could be viewed from far away. (See figure D.6.).
ORIENTATION	
NATURE	
FLOORSCAPE (surface contours)	

INFLUENCES	THE BYZANTINE CITY
Technology	Use of pendentive construction in Hagia Sophia (AD 532 - 37), which is a dynamic solution to the problem of setting a round dome over a square or rectangle.
Political life	Byzantium period was characterized by external and internal struggles.
Ecclastical (of the church)	In AD 730. Emperor Lea III, ordered the destruction of all images which portrayed Christ, Virgin Mary, saints or angels in a humanistic form. This resulted in conflict throughout the Byzantine Empire for the following 113 years between the Iconoclasts (image-breakers) and the Icondules (venerators of images). The defeat of Iconoclasm was officially announced in 843, and from this period onwards orthodoxy became the key concept in Byzantine art. The Byzantine style is perceived as a vehicle for the conveyance of the extremely complex symbolism of the fully developed Christian beliefs.
Secularism	Evidence of ingenious devices to keep the rooms cool in summer, as noted by the Ambassadors from the court of T'ang China to Constantinople. The Hagia Sophia was secularized in the twentieth century and is presently a museum.
Concentration of power - political - economic - religious	Byzantium period - characterized by external and internal struggles.
The Power Hierarchy	The Byzantine Empire was established in AD 330 when Constantine created the second capital of the Roman Empire, Byzantium (later being renamed as Constantinople). Initially two crises characterized the Eastern half, firstly, the barbarian invasions of Europe (fifth century) and secondly, the religious crisis (fourth and fifth centuries). Emperor, Justinian (527 - 565) encouraged imperialism and Christianity, reconquering various countries, thus reinforcing his ambition and sovereignty. In the sixth century threats from all sides (the Lombards, Slavs, Arabs and Bulgars) reduced the empire territorially to a Byzantium enclave concentrated in Constantinople. In the seventh century, Byzantium regained strength through the investment of political power in the military leaders. The period of Isaurian rule (717 - 867) was characterized by administrative order, general welfare and attempts to minimize internal strife. Thus, the one hundred and fifty years which followed exhibited prosperous examples of city building. However, the period from 867 - 1453 was wrought with internal troubles, disputes between the aristocracy and the bureaucracy, the development of a rift between the military and the power elites, (resulting a deprivation of funds for the army) and various religious controversies. These internal struggles and conflicts finally resulted in the decline of the Byzantine Empire. Those major architectural works characterizing city building in Byzantium were most obvious and dominant during the periods of prosperity, with minimal developments during the declining periods of Byzantium.
Culture	Byzantine silks were strongly influenced by Persian textiles, which emphasizes the change of Byzantium and more Asian notion than European. The occurrence of the Second Flowering or Second Byzantine Golden Age, (between the tenth and twelfth century) when Byzantine culture re-encountered its Hellenistic sources, which were incorporated into styles adopted from the Age of Justian.

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
URBAN SPACE	
- Squares	
- Streets	
· Parks and Gardens	Wild animals, especially the more ferocious or exotic ones were kept in the zoological garden of kings in the Middle Ages.
- Vacant Land	A circle of vacant land of three miles was provided around Florence, for the later occupation of rich estates with expensive mansions.
- Meeting Place	
- INDOOR/INTERIOR SPACE	The Carolingian Period - the interiors tended to be characterised by repetition of identical units in an orderly progression. The Palatine Chapel (792-805), exhibits a blunt massiveness within the solid geometrical form. The Ottonian Period - the interior space takes on the appearance of being composed of a number of vertical segments. eg. the Abbey church of St.Michael at Hildesheim (c1001-1031). The Romanesque scale - an interior of breathtaking scale was evident.  **Figure E.1.** : The nave of St. Michael's. **Source** : Gardiner, H. Op. cit, p.289.

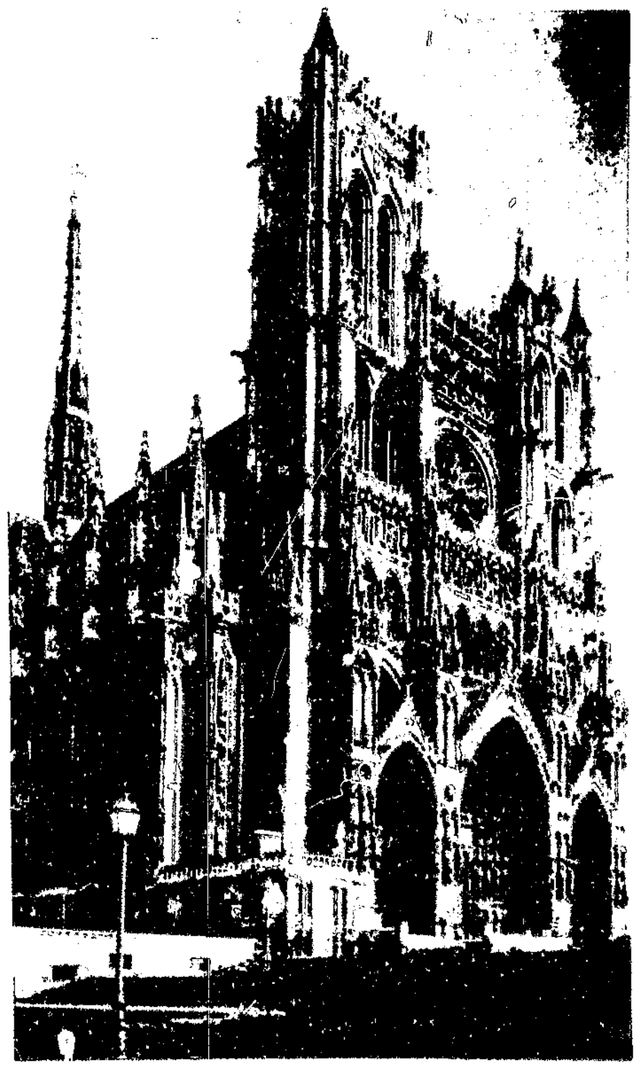
ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
	The Gothic period - a new feature of the interior is the triforium which is a band of arcades below the clerestorey that occupies the space corresponding to the exterior. The triforium breaks up all continuous wall surfaces. Gothic builders have tended to aim at creating an integrated, unified interior space that extends from west to east. The organic, 'flowing quality of the High Gothic interior was enhanced through the new nave wall elevation which admitted additional light through the enlarged derestorey windows. However, the interior is still relatively dark, due to stained glass windows. In the Amiens cathedral the manifestation and transparency determined the look of the cathedral. In the interior of the Gothic Cathedral light became symbolic of a Divine manifestation (i.e. light is a symbol of the spirit) and the subdivision of the interior is representative of the ordered cosmos as explicated by scholastic philosophy. The Rayonnant style, where the interior was filled with a rose-violet light, as in the Sainte - Chapelle (1243-48), due to richly coloured stained glass surfaces.
INTERFACE	The Early Gothic Period - The interface has been dealt with, as in the Laon Cathedral (c 1190), where the doorways, under protective porches, and the towers have been treated as integral parts of the mass of the building. The interior stories are reflected in the levels into which the facade is divided.  **Figure E.2.** : Laon Cathedral (c.1190). **Source** : Gardiner, H. Op. cit, p.321.
CITY PLAN (layout)	During the Early Middle Ages, the emerging system of government, namely Feudalism, resulted in a politically divided city layout, being comprised of individual territorial units. Thus, feudalism resulted in a city layout which was disjointed and incoherent, both physically and functionally.
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
- Residential	
- Religious	Palatine Chapel - geometric clarity. The monasteries had a significant role in the revival of learning. The schematic monastery plan was laid out on a module basis, which was based on the layout of a cross eg. The Monastery church of St. Riquier (c 800). The Romanesque style - the utilization of the arch as a structural Abbey Church, Cluny III (1088 - 1130). During the late Middle Ages a new emphasis was placed on the Virgin Mary, stressing her importance in religious life. The early Gothic period - the church dimensions were elegant, with a string of chapels and luminous windows, which proclaimed this new style, eg. the Abbey church of St. Denis, 1140 - 44. (St. Denis was the patron saint of France). An example of the rayonnant style is the Saint - Chappelle in Paris, 1243 - 48.
- Administrative	The rayonnant ('radiant') style dominated the second half of the century which was associated with the royal Paris court of Louis IX, known for his justice, chivalry and piety.
- Political (Military)	
- Historical/Monumental	During the Romanesque stage, the utilization of campaniles was evident eg. the campanile of Pisa (1053 - 1272), which was marked by graceful, arcaded galleries which are repetitive of the cathedral's facade. The grouping of buildings of Pisa (the cathedral, baptistry and campanile), together with the adjacent Campo Santo (cemetery) is one of the handsomest ensembles in the history of architecture.  **Figure E.3.** : Aerial view of the cathedral group of Pisa. **Source** : Gardiner, H. Op. cit, p.302.
- Educational	During the Late Middle Ages, universities began to replace the monasteries, as centres for learning. There was a revival of classical literacy studies together with the introduction of humanistic elements in the field of religious devotion, theology and philosophy. Many universities gained their franchises in the twelfth and thirteenth centuries, eg. Oxford University in England, the University of Salamanca in Spain, the University of Bologna in Italy, and the University of Paris in France. The official franchisement of the universities, made them more public as opposed to the previous incorporation in the monasteries.
- Recreational	
- Retail	
- Commerce/Office	

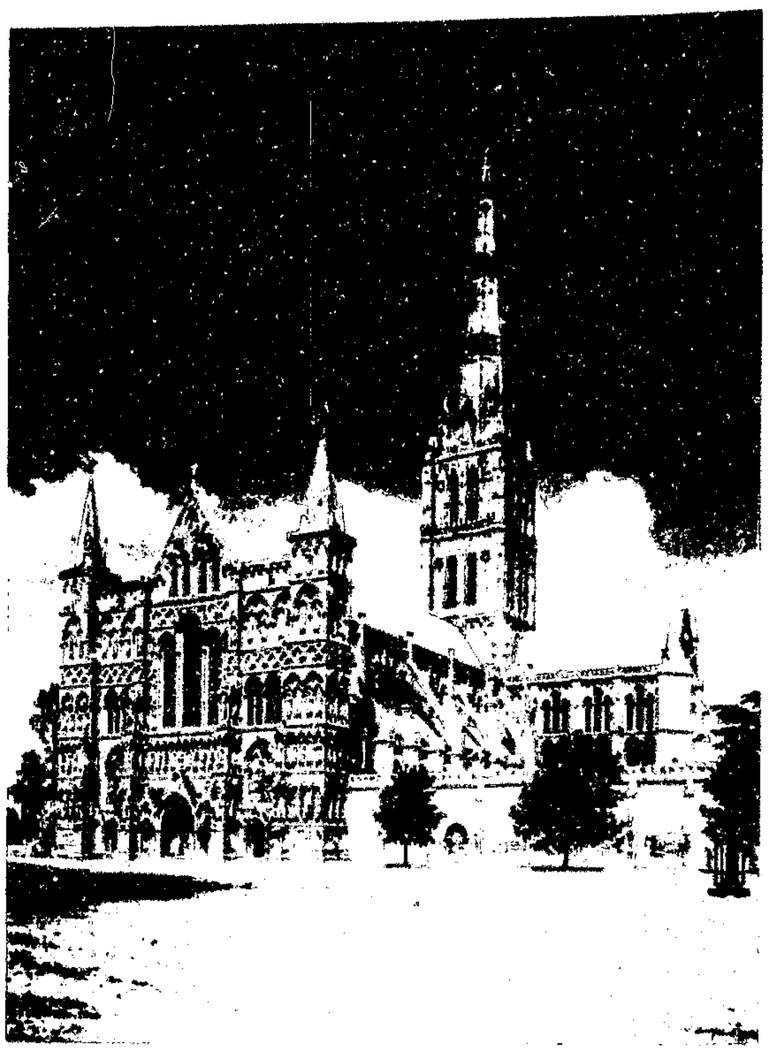
ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
- Industrial	
GENERAL i.t.o built form	
- Scale and mass	The Carolingian Period - the utilization of proportional spacing among the various portions of their buildings. The St. Gall plan reflects a balancing of units and a type of division and subdivision of the site.  **Figure E.4.** : The St Gall Plan. **Source** : Gardiner, H. Op. cit, p.285.

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
	Romanesque style exhibited buildings which were large in terms of mass, and in comparison to its predecessors. St. Sernin's great scale provides ample space. The Early Gothic Period - revealed a purity of outline, simplicity, and a form and light peculiarly conducive to meditation. The absence of walls provided a unified space as in the choir at St. Denis (1140 - 44).  **Figure E.5.** : Choir of St. Denis. **Source** : Gardiner, H. Op. cit, p.318. The Rayonnant style, where the emphasis was on the extreme slenderness of architectural form and upon linearity in general. Late Gothic architecture tended to be confined to buildings of quite modest size and conservative structure
- Materials	The Gothic period - the partitioning of units was possible through the utilization of Gothic vault. In addition to this the penetration of the mass of the wall has become very deep, as evident in the facades of the Laon Cathedral (c 1160 - 1205). The Carolingian Period - used wood, timber architecture was common. The Romanesque style - roofs were constructed of stone as opposed to its predecessors. The Gothic period - the sensitive utilization of stone as a building material, by the Gothic mason resulted in an extraordinary, compartmentalized architectural type. The Rayonnant style, where a large portion of the building was composed of stained glass eg. the Sainte - Chapelle (1243 - 48), where three quarters of the building was made of stained glass.

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
- Walls and Facades	The Romanesque style - exterior wall surfaces become adorned and decorative, reflecting the interior organization of the structure eg. St. Sernin, Toulouse, (c 1080 - 1120). Rich, ornamental exteriors are evident, achieved through the incrustation in coloured marbles. Exterior sculptural decoration on the portals and capitals of religious buildings eg. the portal on the facade of St. Trophime (late twelfth century) and the capitals from the cloister of St. Pierre (c 1115 - 35). The Early Gothic Period - the wall and facade design were elaborate and complex. The High Gothic Period - the portals of churches are highly sculptured and decorative eg. the portals of Chartres Cathedral (c 1145 - 70).  **Figure E.6.** : Chartres Cathedral. **Source** : Sporre, D.J. Op. cit, p.234. The flying buttress is a characteristic Gothic structural device, used for the nave of Notre Dame in Paris (c.1180).  **Figure E.7.** : Notre Dame, flying buttresses. **Source** : Sporre, D.J. Op. cit, p.232.

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
	The Gothic verticality is evident on church facades, such as the Amiens Cathedral (c.1220 - 36), which was a result of close viewing conditions as well as a logical consequence of the structural system. Verticulism also represents and reinforces the notions of religious aspiration. Richness and intricacy of the surface decoration is evident in the Amiens facade, yet the facade still retains its monumental grandeur.  **Figure E.8.** : Amiens Cathedral, west front. **Source** : Sporre, D.J. Op.cit, p.235. Late Gothic - concerned with surface forms as opposed to innovations in structure.
INFRASTRUCTURE	
MOVEMENT (physical connections)	
Movement as a consequence of form	Within the Romanesque churches, circulation was complicated, with the provision of additional space for large congregations participating in pilgrimages.
Movement as a generator of form	

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
VIEWS, VISTAS AND SKYLINES (visual connections)	The Carolingian Period - multiple, integrated towers where common to most Carolingian churches, thus creating a certain silhouette. The towers were large, vertical, cubic and cylindrical masses, which rose above the horizontal roofing, balancing each other in sets of groups. Romanesque style - new heights were achieved with the use of stone, creating impressive silhouettes eg. St. Sernin, Toulouse (c 1080 - 1120).  **Figure E.9.** : St. Sernin. **Source** : Sporre, D.J. Op. cit, p.200.

ELEMENTS OF THE PUBLIC REALM	THE MIDDLE AGES The Early Middle Ages (100 AD - 1200 AD) The Late Middle Ages (1200 AD - 1500 AD)
	The Early Gothic Period - multiple integrated towers eg. the Laon Cathedral (c 1160 - 1205). The High Gothic silhouette was one of slender crossing spires interrupting the long horizontal roof line. The skyward impulse became an obsession with Gothic builders. With the new skeletal frames of stone (during the High Gothic period), architects aimed at achieving effects of insubstantial visions floating far beyond the reach of man. (eg. The Salisbury Cathedral (begun 1220).  **Figure E.10.** : Salisbury Cathedral from the south-west. **Source** : Sporre, D.J. Op. cit, p.211.
ORIENTATION	
NATURE	
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE MIDDLE AGES
- Technology	Evolution of a self-sufficient skeletal support system within the built form, together with the utilization of rib vaults. Significant progress of vaulting craft was evident. The introduction of the alternate-support system in the 1080s. The appearance of diaphragm arches (c1060), which possess multiple functional and aesthetic. The utilization of the Gothic rib vault, which was different from other rib or arched vaults by its use of the pointed, or broken, arch as an integral part of the skeletal armature. The use of flying buttresses which were a characteristic structural device of Gothic times, initially use of in c 1180 for the nave of Notre Dame, Paris. The concept of a self-sustaining skeletal architecture reaches its full maturity during the High Gothic period.
- Political life	Gothic society was a comparatively ordered feudalism. Less interdependence on the Church was evident during this period, together with the establishment of a centralized government. A middle class sector comprising of craftsmen, merchants, and professionals balanced the feudal aristocracy.
- Ecclastical (of the church)	The early Middle Ages and the spread of early Christianity are essentially inseparable. The Romanesque style is exemplified by the power and wealth of the Church, reflecting the new religious fervour. In the Gothic period, the Franciscan movement was important people in cities, moving away from the Romanesque influences. During the late Middle Ages emphasis in the religious arena shifted from the oppressive wrath of God to the sweetness and mercy of the loving Saviour and the Virgin Mary.
- Secularism	The institution of the university begins to appear in the early Gothic period. Two particularly influential people in the formation of the Gothic style were Bernard of Clairvaux and Suger, abbot of St. Denie. During the late Middle Ages the new universities replaced monasteries as centres of learning. Concern for mankind's diversity and individuality emerged in the late Middle Ages.
- Concentration of power political economic religious	The Carolingian Period - monasticism stated that the most perfect Christian life, should be carried out in seclusion.

INFLUENCES	THE MIDDLE AGES
- The Power Hierarchy	The Early Middle Ages (AD 100 - AD 1200) The medieval popes and Bishops claimed authoritarian supremacy. The Church as an institution together with its function and authority were very significant during this period, being influential over various city building processes, with particular emphasis on churches and cathedrals. Due to the large numbers of Christians, the religion of Christianity became a dominant political force to be reckoned with. The church possessed numerous privileges, in that it could receive legacies, its clergy were excused from taxation and bishops were allowed to resolve disputes of law in all civil cases where a Christian was involved. During the sixth to ninth centuries feudalism encouraged warfare and bloodshed as no strong authority controlled the individual territories. At the bottom of the rigid social hierarchy were the common people (serfs) who were little more than slaves who worked for the local lords. i.e. the local lords who possessed wealth were the providers and initiators of city building processes, whilst the serfs were the producers of the physical, architectural products of city building. However, during this period the Church was a significant stabilizing force amongst the turmoil. During the rule of Charlemagne organized political centralization was evident for the first time since the fall of Rome. The Carolingian period, under Charlemagne revived interest in art, antiquity to learning, together with a prosperity in the domain of city building. eg. The Palatine Chapel of Charlemagne, Germany, which fulfils the political ambitions of the emperor. The Late Middle Ages (AD 1200 - AD 1500) The rapid growth of towns and cities directed wealth and power away from the feudal landlords. The development of the art of city building during this period was largely controlled by the Christian church, as expressed in the Gothic cathedrals, in which the mystery of faith was incorporated into the mystery of space. The founding of the Abbey of Cluny became the model for the reformation of the church, thus enhancing its prestige and significance in terms of city building affairs. The rigid class hierarchy which existed in the Early Middle Ages, began to diminish with the establishment of powerful guilds of artisans and merchants which strengthened the resolve of the middle classes, ultimately resulting in the emergence of a rudimentary democracy. By the fourteenth century, God and the state were perceived as separate entities of authority, with neither being subject to the other. Through Europe individual nations originated in contrast to the previous feudal states or Holy Empires. The terms "ebb and flow" and "shifting and sliding" can be utilized to characterize the various chronological periods which correlate closely with the energies of the city building processes. The Gothic spirit in England was evident in city building (primarily the cathedrals), thus symbolizing the world's awakening to a fresh light of faith and expanding horizons.
- Culture	The Byzantine prototype was evident in the built form eg. The Palatine Chapel of Charlemagne (792-805).

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
URBAN SPACE	
- Squares	St Peter's Square - where the enclosure of space creates a pleasant space, together with the utilization of strong visual accents, namely obelisks. The Plaza proper of the Campidoglio, captures ones interest and heightens ones sense of expectation through the introduction of fine sculptural details. The visitor is further enticed to find even finer details.

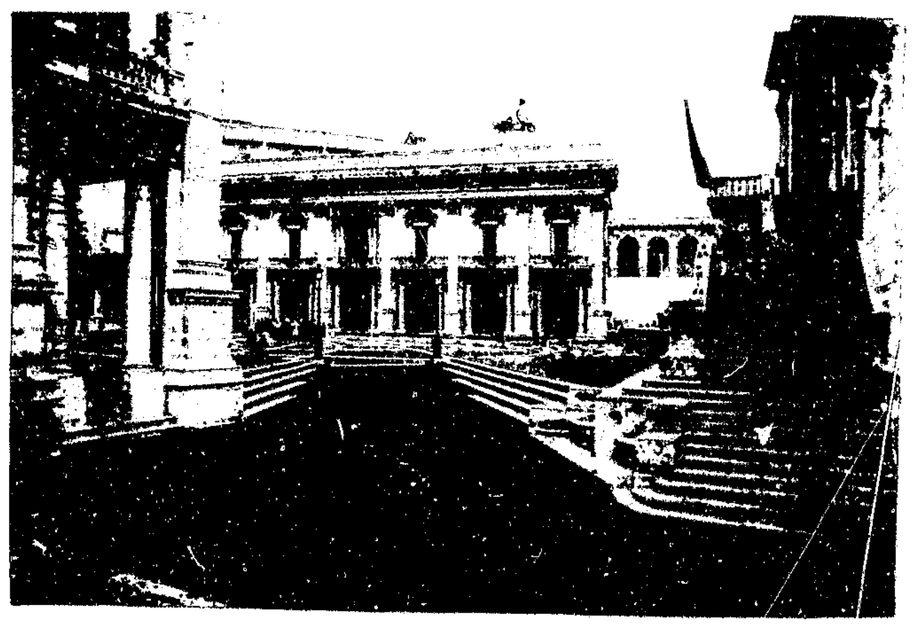


Figure F.1. : The Campidoglio.
Source : Webb, M. (1990). The City Square, p.132.

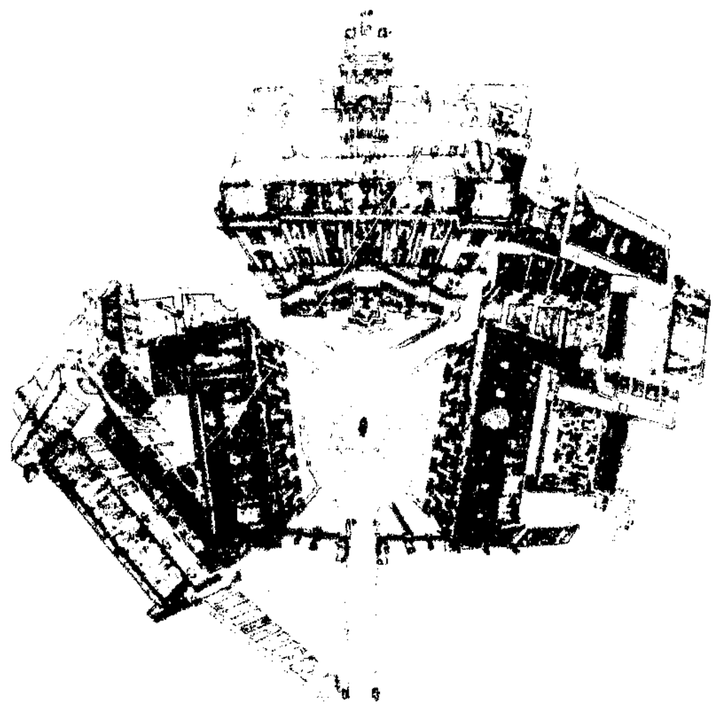
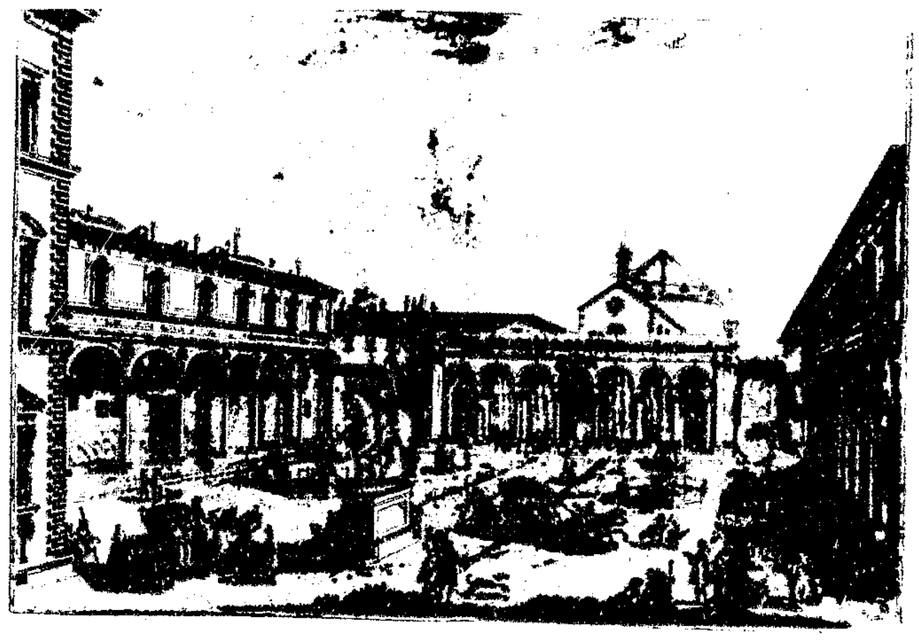
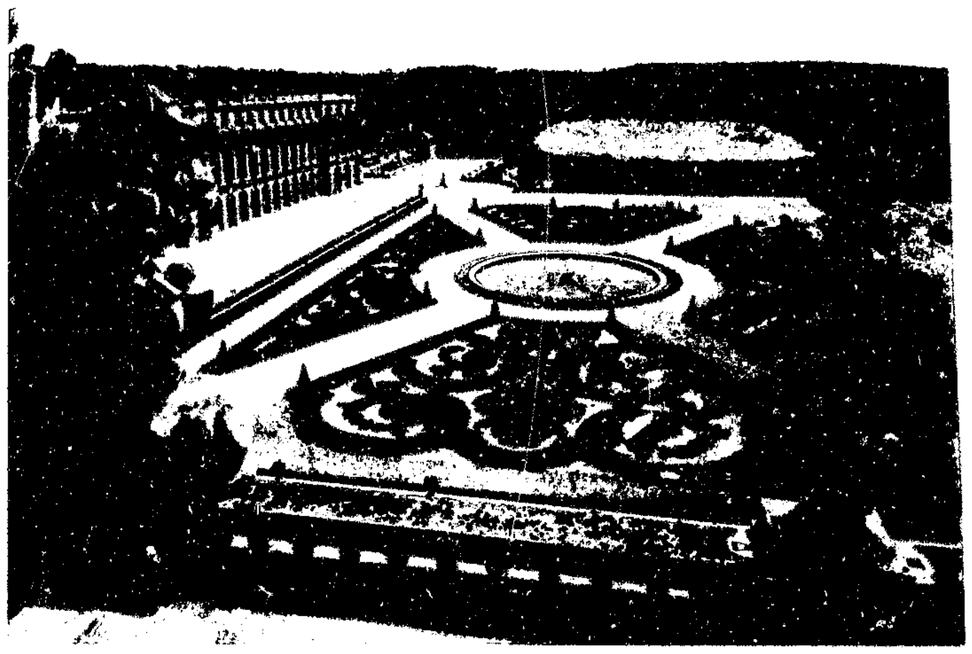


Figure F.2. : The Campidoglio (a multiple perspective sketch).
Source : Webb, M. Op. cit, p.132.

The Place Dauphine in France, was a plaza which spanned the two branches of the Seine. The Place des Vosges, was Renaissance in layout, its buildings were Gothic in design (treated individually adjacent to one another to form the four containing walls of the plaza. The plazas of France were perceived as a compromise between the city's urge to expand and constraining royal decrees.
The Capitoline Square by Michelangelo (1539) was one of the most significant urban interiors, being an enclosed space delimited by converging facades.

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
	According to Webb (1990) the Piazza SS. Annunziata, was the purest Renaissance square in Florence, established in 1234 and completed in 1426. (See figure F.3.).  **Figure F.3.** : The Piazza SS Annunziata. **Source** : Webb, M. Op. cit, p.73.
- Streets	

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
- Parks	The entire complex of the Vatican, incorporated a vast scheme of parks, gardens and fountains, namely the Belvedere Gardens which were terraced. The ideas relating to landscape design of the French, stem from their large hunting grounds. The park of Richelieu, formed part of Cardinal Richelieu's country residence, which brought together the arts of architecture, landscape architecture, and urban design. The Richelieu project incorporated the palace, gardens, park and town, forming a totally conceived relationship, in which the town was perceived as an element in the total landscape. The layout of Versailles, included the relationship between a town, a palace, gardens and a huge park, which was undertaken by Lenotre. The park of Versailles contains a wide range of vista axes, which relate to an unlimited variety of buildings and places.  **Figure F.4.** : Palace of Versailles. **Source** : Sporre, D.J. Op. cit, p.333. The park of Versailles contains a zoo, a children's playground, a few adult playgrounds, several small palaces, classical temples and statuary, a mock dairy village, gardens, lakes, innumerable woods, and a variety of other features. The Italian terrace garden was a model of gardening in limited space, which later became the prototype for gardens which extended from palaces eg. the Tivoli gardens in which nature is terraced into geometric plots.
- Vacant Land	
- Meeting Place	The synthesis of enclosure and directed movement aids the captivation of people, making this space one of the greatest interpretations of the concept of 'place' ever conceived by man (Norberg-Schulz, 1980).
- INDOOR/INTERIOR SPACE	

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
INTERFACE	The Early Renaissance - the outer form of buildings, reflected the actual structural support of building. Those structural elements evident in the Middle Ages were visually hidden and the external appearance was no longer related to structural concerns. eg. Brunelleschi's dome of the Florence Cathedral, 1420 - 36, were the visual experience of the soaring dome and the phenomenal height, can be experienced both internally and externally. In this instance the visual appearance is most significant, with the structural considerations being subordinate.

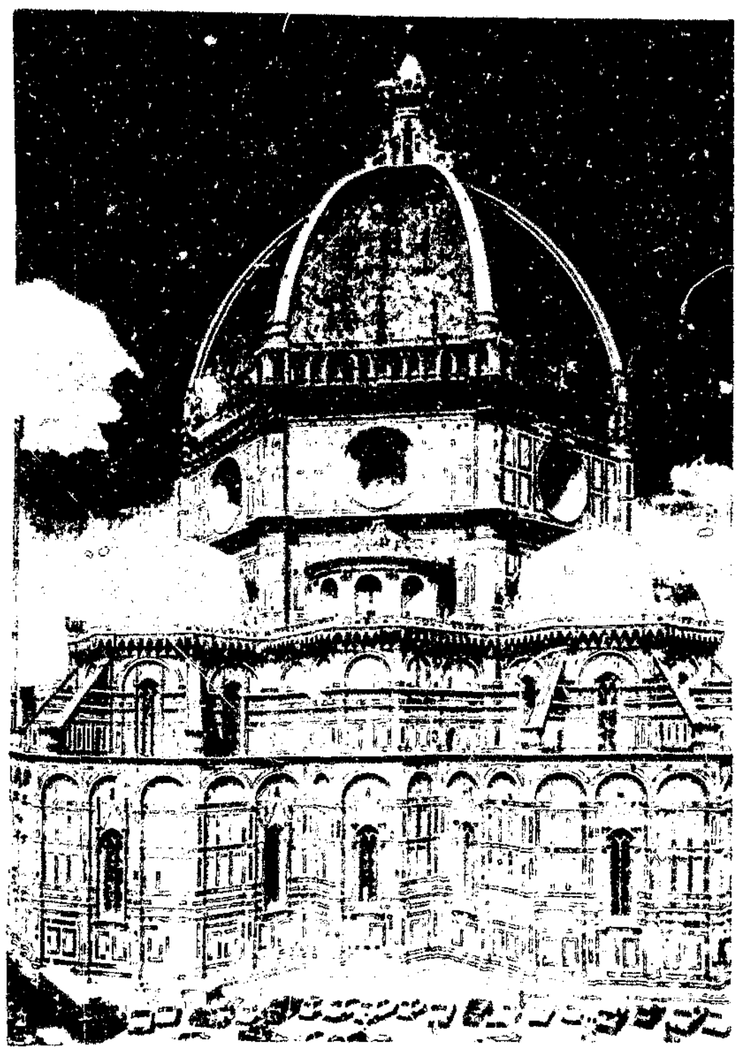
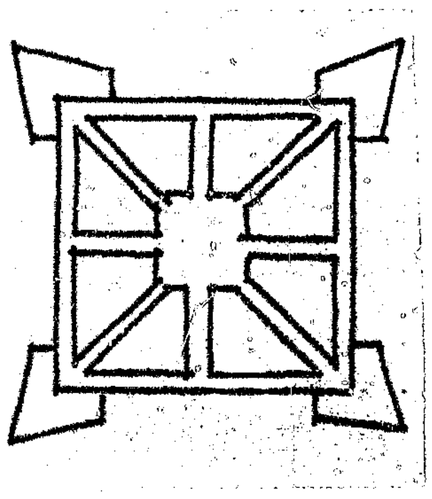
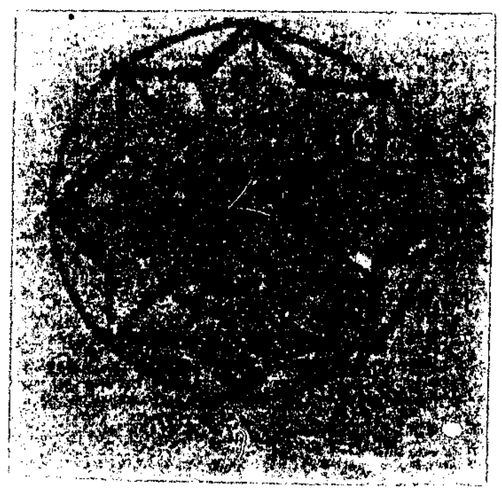
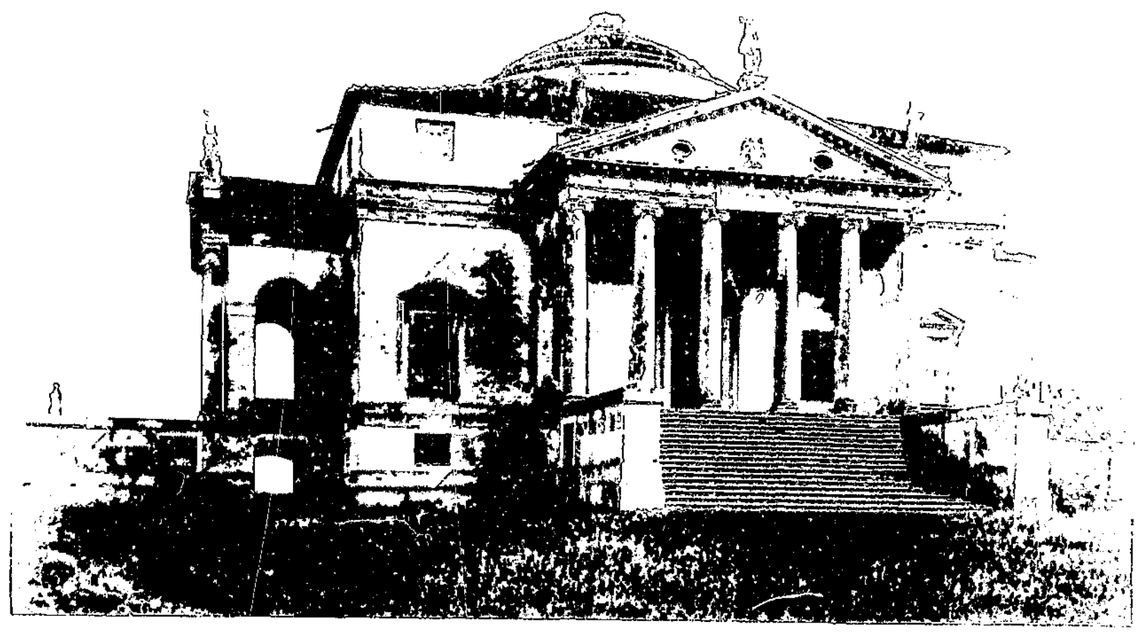
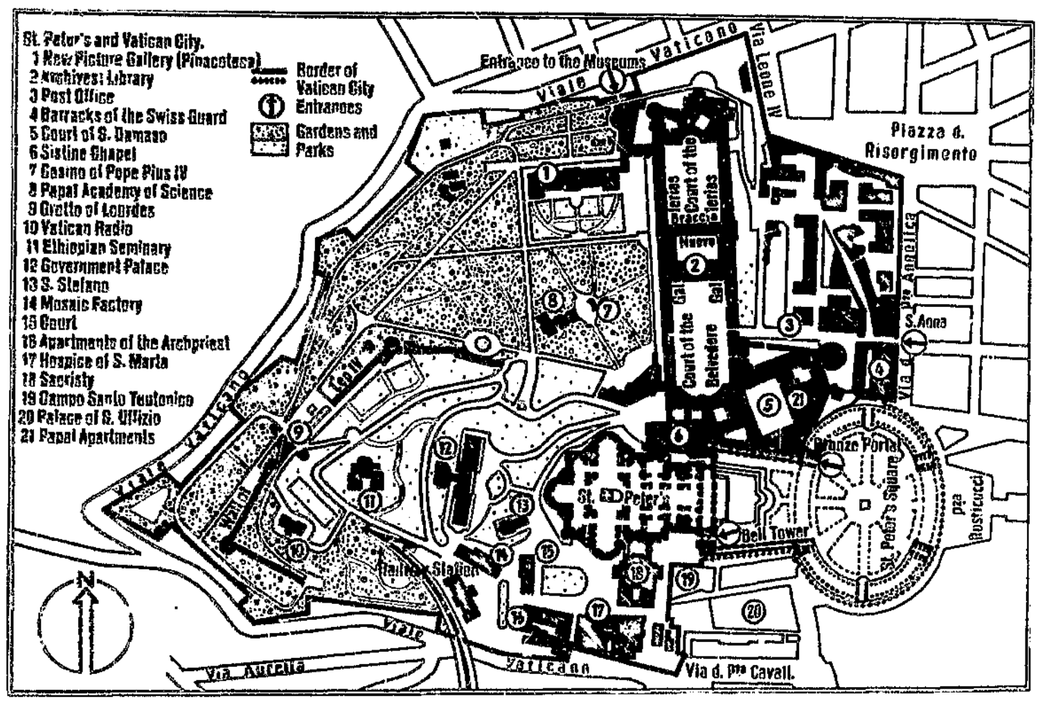
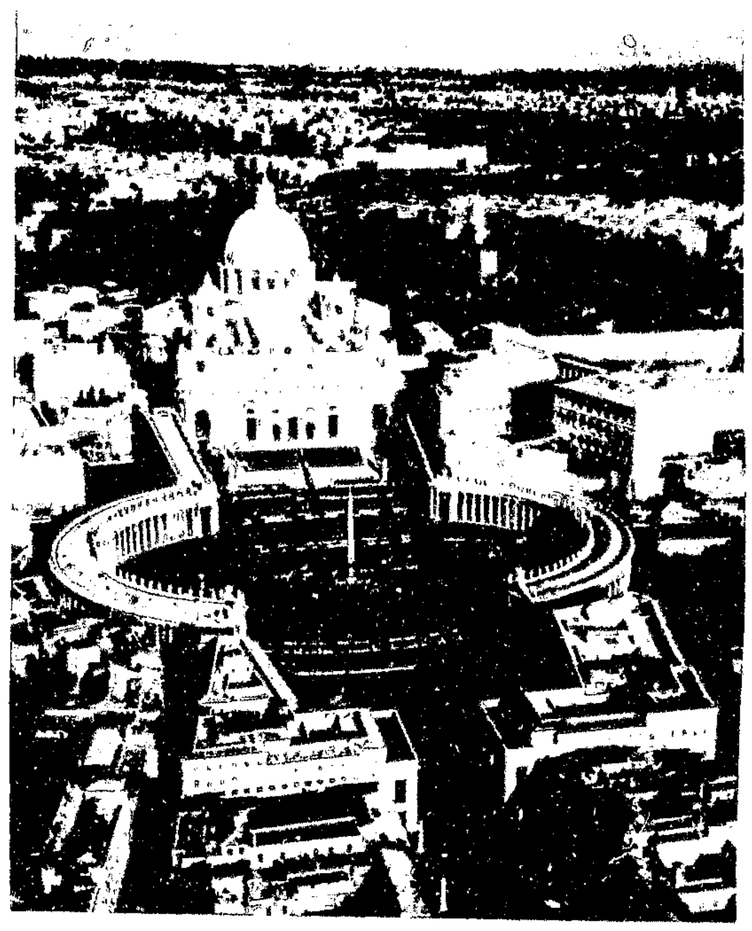


Figure F.5. : Dome of Florence Cathedral (Brunelleschi).
Source : Sporre, D.J. Op. cit, p.284.

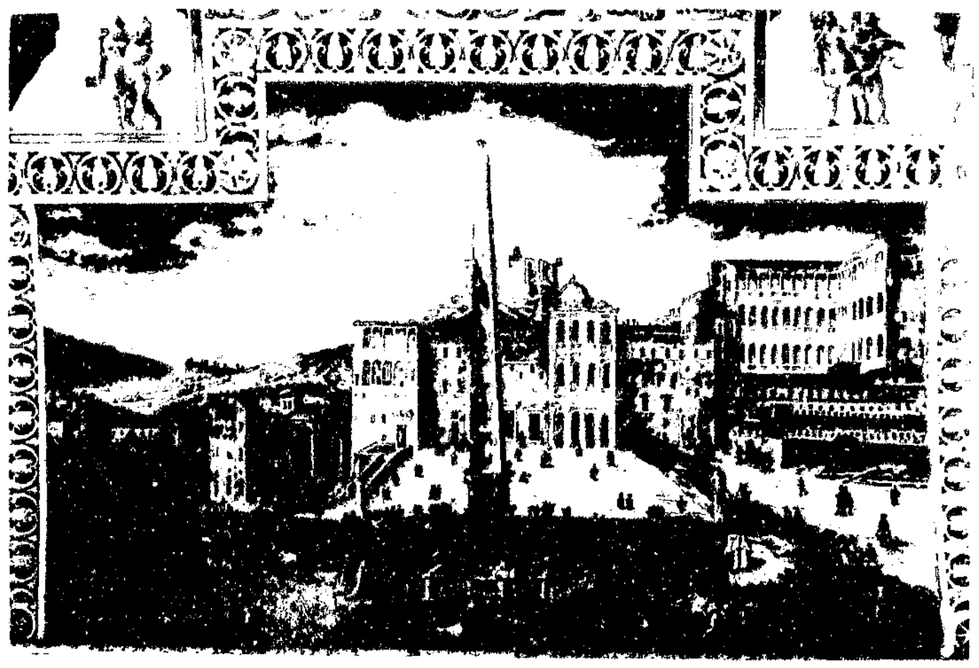
ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
CITY PLAN (layout)	Various theorists derived plans for 'ideal cities' during the Renaissance, namely Maggi's ideal fortified city, Filarete who was preoccupied with the military possibilities of the star-shaped plan and Alberti, who also concentrated on the idea of the star-shaped city, with a central focal point (being a church, a palace or a castle).  **Figure F.6.** : Plan of an ideal fortified city by G Maggi. **Source** : Spreiregen, P. Op. cit, p.12  **Figure F.7.** : Plan for an ideal city by Filarete. **Source** : Spreiregen, P. Op. cit, p.12
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
- Residential	The Late Renaissance - Villas and palaces were designed by Palladio who attempted to portray a sense of individuality relative to the needs of the clients eg. the Villa Rotunda in Vicenza. (1567 - 69)  **Figure F.8.** : Villa Rotunda. **Source** : Sporre, D.J. Op. cit, p.287.
- Religious	The papacy as a force and the Vatican as a symbol of that force signify a synthesis of Renaissance ideologies and reflections. The Vatican can be perceived as the centre of the spiritual power of Roman Catholicism with the diversity of human knowledge. St. Peter's and the Vatican exhibit earthly and heavenly qualities which reflect the reality of the Church on earth and the mystery surrounding the spiritual church of Christ. The splendour of the Vatican lies in its scale, detail and magnificent dome. The Vatican is reflective of the times, namely the Church, the Papacy and their interrelationship with the world.  **Figure F.9.** : Plan of the Vatican and St. Peter's. **Source** :
- Administrative	Civic works - public works and civic improvement projects where significant accomplishments of the early Renaissance, which attempted to improve circulation, sanitation and defence.

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
- Political (Military)	City layouts of the early Renaissance, exhibited an emphasis on various military possibilities. Today the surviving fortification walls of Renaissance cities remain.
- Historical	
- Educational	The invention of the printing press in 1445, revolutionized education due to the availability of text books. In addition to this, there was an increase in the number of scholars (similar to our public schools), which enabled a wider range of the public access to education. Renaissance explorers opened new windows in terms of geographical discoveries (eg. In 1486 Diaz sailed down the coast of Africa, in 1492 Columbus sailed around the horn of Africa to India, and in 1522 Magellan sailed around the world).
- Recreational	
- Retail	
- Commerce/Office	
- Industrial	
GENERAL i.t.o built form	
- Scale and Mass	The Early Renaissance - Brunelleschi's Pazzi Chapel (c 1440 - 61) tends to be small in terms of scale, exhibiting a concern for proportion and geometric design, however the overall composition is not totally dependent on arithmetical considerations. (See Figure F.8). The High Renaissance - movement away from decorative surface detail as more evident with a greater emphasis being placed on space and volume. The style of architecture became more formal, monumental and serious in nature eg. Bramante's Tempietto, (c 1502-1511) which was monumental and which was to overshadow the remains of Imperial Rome. Late Renaissance architecture displayed mannerist tendencies eg. Pierre Lescot (begun 1546) which exhibits unusual proportions with the strange juxtaposition of curvilinear and rectilinear line. Harmony of architectural forms was evident in the built form. eg. in Bramante's design for St. Peters (1506). The splendour of the Vatican is to a certain extent of a result of its scale.
- Materials	
- Walls and Facades	The Early Renaissance - non-structural ornamentation was evident on the facade of the building eg. Brunelleschi's dome of the Florence Cathedral, 1420 - 36. Classical ornamentation can be perceived in Brunelleschi's Pazzi Chapel (c1440-61), where the walls are background for surface decoration. (See Figure F.8.). The Late Renaissance reveals the application of decorative detail to exterior wall surfaces eg. Pierre Lescot exterior facade of the Square Court of the Louvre (begun in 1546). However, in Palladio's Villa Rotunda in Vicenza (1567 - 69) the exterior surfaces of detail have been cleansed. In the Campidoglio in Rome, the facades of the buildings are visually unified by the gigantic order, namely flat pilasters.
INFRASTRUCTURE	
MOVEMENT (physical connections)	

ELEMENTS OF THE PUBLIC REALM	THE RENAISSANCE 1300 AD - 1600 AD
Movement as a consequence of form	Movement tended to be dictated by the city's form in various contextual settings such as St. Peter's Square, Capitoline Square and the Vatican.  **Figure F.10.** : Aerial view of St. Peter's. **Source** : Webb, M. Op. cit, p.135.
Movement as a generator of form	In the layout of Versailles movement could be perceived as a significant integratory device which contributed to the generation and facilitation of city form.
VIEWS, VISTAS AND SKYLINES (visual connections)	The Renaissance domes aimed to provide large sculptural forms against the background of the skyline, and for this reason domes often tended to be raised on various building forms. eg. St. Peter's Dome. Fontana (commissioned by Pope Sixtus V to prepare a street plan) introduced a system of visual accents to define the overall street design concept, namely the use of obelisks.
ORIENTATION	
NATURE	The French did not hesitate to transform nature (trees and shrubs) into man-made, preferably geometric, creations. At Versailles the underlying philosophy was that of the absolute command of nature. The English attitude was one of taming nature by clarifying its inherent features rather than altering nature to some man-made design eg. the grounds of Prior Park near Bath.
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE RENAISSANCE
- Technology	The invention of the printing press in 1445 allowed the reproduction of Humanist writings and Greek and Roman literature, as well as the rapid circulation of these writings. The spirit of inquiry focused particularly on the science of astronomy. In 1530 Copernican theory was discovered and put forward as a valid theory, however, initially this theory was not widely accepted.
- Political life	Initially the Reformation was a political power struggle as well as a theological schism.
- Ecclastical (of the church)	Popular resentment of central ecclastical authority was widespread during the Reformation Period.
- Secularism	Emphasis in classical antiquity was obvious. The Renaissance was perceived as the age of scientific enquiry, which together with the concern for detail led to a fascination with anatomy. A system of mechanical perspective was calculated, incorporation a set of rules of proportion and balance. Unity, form and perfect proportion comprised the set of laws. The Renaissance placed a new emphasis on the individual and on individual achievement, resulting in the introduction of capitalism or mercantilism, (which offered the individual freedom to pursue increased material standards). Thus, capitalism encouraged increasing diversification of occupations and social situations, depending on urban settlements. During the fourteenth and fifteenth century, the expansion of trades, capitalism and commerce brought a high degree of prosperity to northern Italy, southern Germany, the low countries (Belgium and Holland), and England. Renaissance scholars began to develop empirical approaches in problem solving as opposed to using the tools of faith and philosophy. The secular world began to move towards the concept of national identity, however identities also varied greatly. During the second half of the fifteenth century, Leon Battista Alberti was an influential contributor to architecture, with his treatise 'Concerning Architecture', (based on Vitruvius) which provided a studious approach to architecture. His approach typified the reduction of aesthetics to rules. Practicality was a necessity which needed to be met.
- Concentration of power political economic religious	With the development of markets of supply and demand, economic development was evident also as a result of the increase in capitalism. Capitalism brought wealth and power to certain families in most of the Italian port cities eg. the Medici family. Less influence was placed on the religious arena during the Renaissance.
- The Power Hierarchy	A new emphasis was placed on the notion of individuality and individual achievement. A new system of capitalism on mercantilism developed in which the rising middle class related control and satisfaction to their new-found wealth and power. During the Renaissance, the early stages of capitalism was evident, accompanied by an increasing pursuit of the attainment of wealth and power. Capitalism encouraged the individual to pursue increased standards of living in accordance with the individual's energy and abilities. During the fourteenth and fifteenth centuries the expansion of trade, capitalism and commerce brought great prosperity to four locations in particular, namely northern Italy, southern Germany, the Low Countries and England. Many of the products of city building owed their outcomes to the political conditions of Europe's varied regions. Individual families in most of the Italian port cities obtained great wealth and power as a result of increasing capitalism eg. the Medici family, who were also great patrons of the arts. City building and art both expressed the spiritual and political turmoil which became evident in the High Renaissance. The Reformation of the Christian Church drastically affected artistic reflection from the second quarter of the sixteenth century. The Vatican is a significant example of city building which reflects the times - the Church, the Papacy and their interrelationships with other worldly matters.
- Culture	Florence, dominated the Renaissance culture, of which the Medici family were particularly influential patrons of the arts.

ELEMENTS OF THE PUBLIC REALM	THE BAROQUE AGE 1300 AD - 1600 AD
URBAN SPACE	
- Squares	In the courtyard of St. Ivo, Rome (c.1642) the use of contrasting convex and concave forms in the surrounding buildings define and enclose the space, as well as providing a cohesive interface. A dialectical relationship between enclosure and axis is evident in Barromini's St. Ivo. The Piazza di San Pietro by Bernini (1658 - 77) incorporates the themes of enclosure and direction. The colonnades enclose space reinforce the link between the interior and the surrounding world.  **Figure G.1.** : Piazza di San Pietro, late 16th century. **Source** : Webb, M. Op. cit, p.134.
- Streets	The church of San Carlo alle Quattro (1665 - 76) defines the street edge and intersection, thus following the curve of the street.
- Parks and Gardens	In the Baroque garden-place, man-made and natural forms are interrelated to form a harmonious, comprehensive whole, possessing cosmic and romantic implications as well as classical implications in the built form of the palace. (See Figure F.3.).
- Vacant Land	
- Meeting Place	Piazza San Pietro has become a very significant meeting place being constantly in use, thus fulfilling Bernini's original function for the square, namely, as a meeting place. (See Figure G.1.).

ELEMENTS OF THE PUBLIC REALM	THE BAROQUE AGE 1300 AD - 1600 AD
- INDOOR/INTERIOR SPACE	The Baroque mind exhibits a fascination for light (eg. the truth of the Holy Spirit, Pascal's infinite space and the colour prism). Balthasar Neumann's pilgrimage church of Vierzehnheiligen reveals this fascination for light with an airy, spacious interior, penetrated by light. The white interior enhances this notion of light further.  **Figure G.2.** : Pilgrimage church of Vierzehnheilligen, interior. **Source** : Sporre, D.J. Op. cit, p.325. The interior of St. Paul's Cathedral (1675 - 1710), emphasizes linear elements such as arches, frames and circles. The unification of interior space is evident in Borromini's Chapel of St. Ivo.

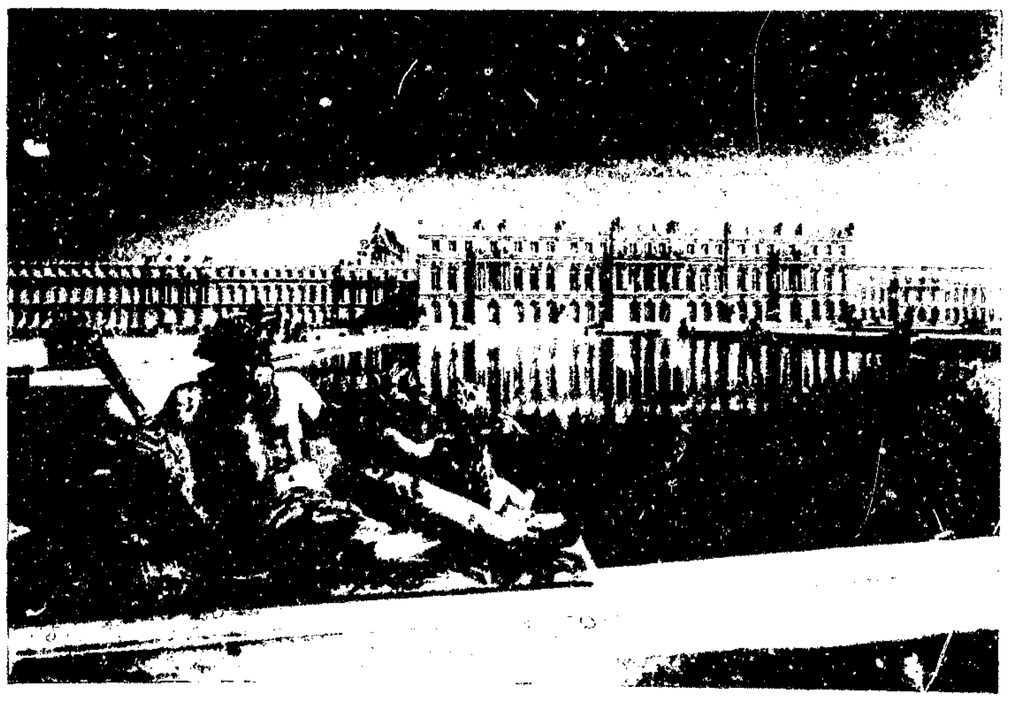
ELEMENTS OF THE PUBLIC REALM	THE BAROQUE AGE 1300 AD - 1600 AD
INTERFACE	Illusionistic devices have been utilized in the Scala Regia, a monumental stairway (1663 - 66). The space between the colonnades of the stairway reinforces the perspective and making the stairs appear to be longer than they actually are. The processional sequence exploits the natural human inclination to move from darkness towards light.

Figure G.3. : Scale Regia.
Source : Gardiner, H. Op. cit, p.635.

The frontispiece of San Carlo alle Quattro (1665 - 76) becomes a pulsating membrane inserted between interior and exterior space, designed to provide a fluid transition between the two.

Figure G.4. : San Carlo alle Quattro.
Source : Gardiner, H. Op. cit, p.639.

ELEMENTS OF THE PUBLIC REALM	THE BAROQUE AGE 1300 AD - 1600 AD
CITY PLAN (layout)	
BUILT FORM (relative to the public realm)	
- Residential	The plan of the Palace of Versailles (1669 -85) also called for the construction of a satellite city to house court and government officials, military and guard detachments, courtiers and servants.
- Religious	The Church of Il Gesu (1568 - 84), represents the spirit of the Counter - Reformation. Il Gesu's design brings the congregation into a large hall-like space directly in view of the altar.  **Figure G.5.** : Church of Il Gesu. **Source** : Gardiner, H. Op. cit, p.632.
- Administrative	The Palace of Versailles (1669 - 85) is the central jewel in an elaborate natural setting. The horizontally extended geometric network of paths reinforces the absolutist claims of the Sovereignty. (See Figure F.3.).
- Political (Military)	
- Historical	
- Educational	
- Recreational	
- Retail	
- Commerce/Office	
- Industrial	
GENERAL i.t.o built form	

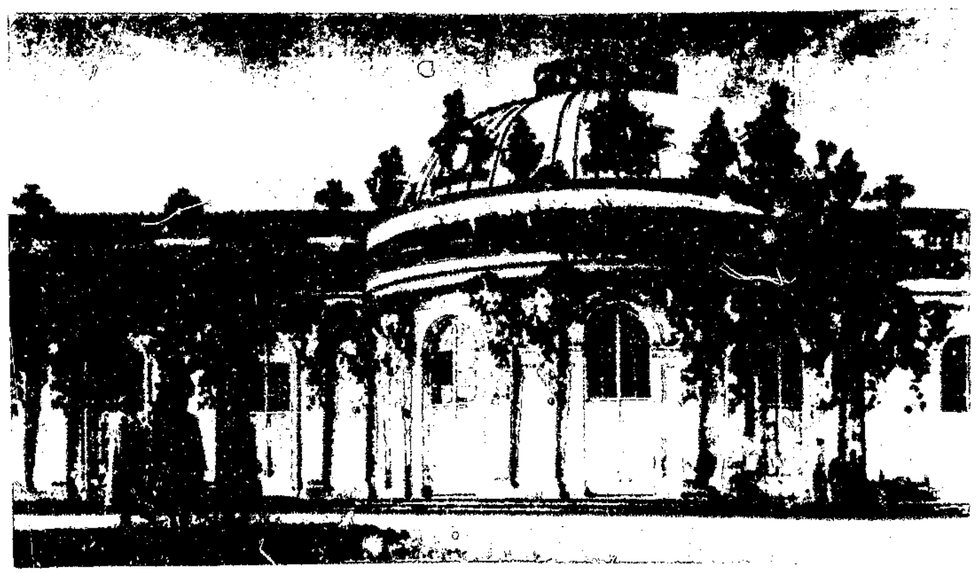
ELEMENTS OF THE PUBLIC REALM	THE BAROQUE AGE 1300 AD - 1600 AD
- Scale and mass	The scale of buildings during this period was dramatic, together with the existence of contrasting elements. eg. the pilgrimage church of Vierzehnheiligen. (See Figure G.2.). The Palace of Versailles (1669 - 85) is comprised of a monumental and complex architectural extravaganza.  **Figure G.6.** : The Palace of Versailles. **Source** : Sporre, D.J. Op. cit, p.326 The scale of St. Paul's Cathedral (1675 - 1710) is overpowering, together with the awesomeness of the dome.
- Materials	Bricks, stone, sculpture, wrought iron and gilt lead were utilized on the facade of the Palace of Versailles (1669 - 85).

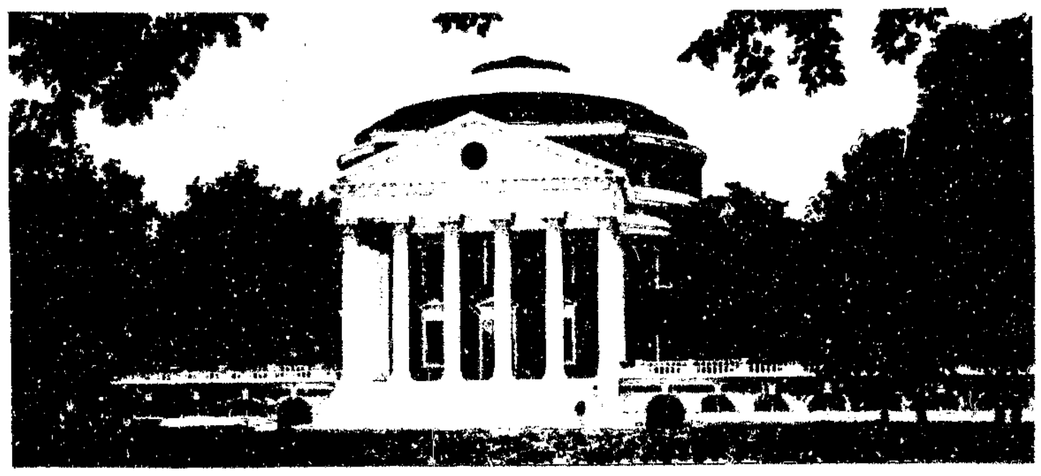
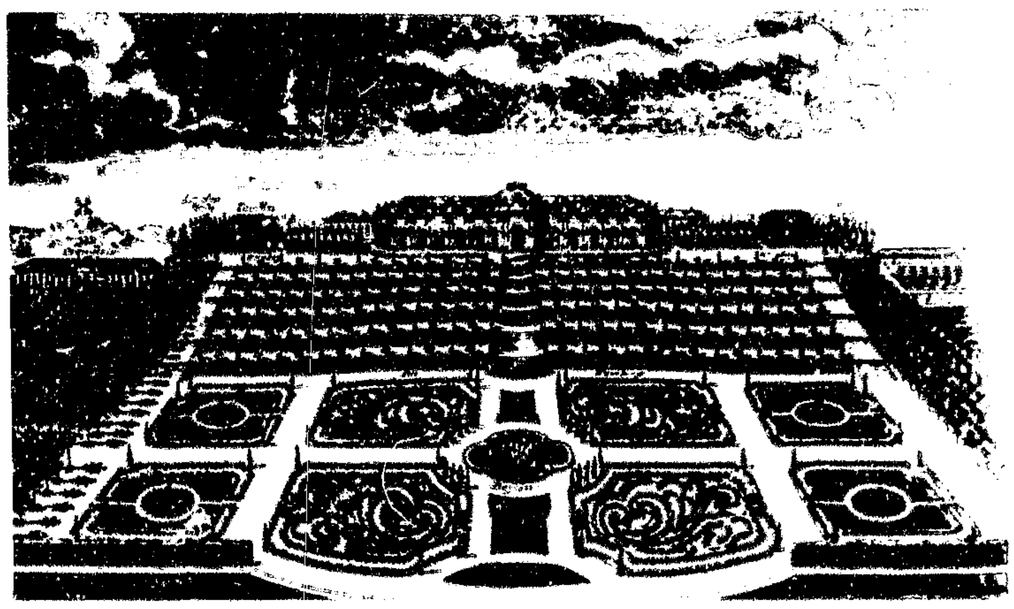
ELEMENTS OF THE PUBLIC REALM	THE BAROQUE AGE 1300 AD - 1600 AD
- Walls and Facades	The interior and exterior facades of the Palace of Versailles (1669 - 85) exhibit the properties of opulence, ornamentation, subordination of detail to the whole, highlighting, shadow and emotion. (See Figure G.6.). The facade of St. Paul's Cathedral (1975 - 1710) has a subtle elegance, with ornate detail, but no over statement or clutter. The facade of Hampton Court Palace, England (c 1690) is a sophisticated and complex interrelationship of merging patterns details. Line repetition and balance in this facade form a unique perceptual experience. The facade of Borromini's Chapel of St. Ivo (1642) plays off concave against convex forms on the exterior (the principle of undulating facades). The lateral three-part division of facades is characteristic of most Baroque palazzi eg. the Palazzo Carignano, Turin (1679 - 92).
	 <u>**Figure G.7.**</u> : Palazzo Carignano. **Source** : Gardiner, H. Op. cit, p.641.
INFRASTRUCTURE	
MOVEMENT (physical connections)	
Movement as a consequence of form	
Movement as a generator of form	
VIEWS, VISTAS AND SKYLINES (visual connections)	The utilization of repetition is evident in the skylines of the Palace of Versailles (1669 - 85) and the Hampton Court Palace (c. 1690). In St. Paul's Cathedral (1675 - 1710) the dome creates a wonderful silhouette on the outside, and on the inside the dome gives rise to a high ceiling. In the church of Santa Maria Della Salute (1631 - 48), the two domes create a skyline of surpassing beauty, floating above the city of Venice or reflected within its waters. Vistas, axes and views have been emphasized in the Palace of Versailles, within the built form and the natural surroundings. All vistas are carefully composed to achieve maximum effect.
ORIENTATION	
NATURE	The utilization of nature on a grand scale, reflects man's systematic rationalism, as in the Palace of Versailles (1669 - 85). The design of nature reflects ornateness and refinement, in which geometric units are defined by elegant forms of trimmed shrubs and hedges. (See Figure F.3.).
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE BAROQUE AGE
- Technology	Interest was expressed in the scientific inquiry of the universe and in the notion of systematic rationalism. Galileo (1564 - 1642) invented the telescope and established the laws of motion. Scientific philosophy was formulated of these inquiries and discoveries, was that of systematic rationalism, i.e. an attempt to find a logical, systematic order based on an intricate and changing universe subject to natural laws, and therefore relatively predictable. Baroque arts sought rational order in intricate relationship focusing on emotional and unrestrained action.
- Political life	During the Baroque Age. Europe was riven by wars and philosophers and scientists cast doubt on the certainties of the Renaissance.
- Ecclastical (of the church)	The concept of time was interlinked with the idea that the ultimate judgement of humankind is by God. The concept of Baroque naturalism tends to remain primarily religious in content. The Baroque age has been identified with that of the Catholic reaction to the advance of Protestantism.
- Secularism	Man's horizons were opened as a result of Magellan's global circumnavigation. The idea of absolution dominated the individual and the collective physchology within the baroque age. Time, space and motion pre-occupy the Baroque mind, in both art and science. The elements of perception in naturalistic Baroque art are those elements prescribed by Baroque science, namely matter in motion through space, time and light. A central theme of the Baroque Age is the resolution of the conflict of reason with nature. An emphasis is places upon the exploration of physical nature, human nature, the realm of the senses and the emotions. The concept of dramatic, sensuous elaborateness is perceived as the Baroque rule.
- Concentration of power political economic religious	Colonialism and trade produced an increasingly powerful middle class of wealthy merchants, who were often patrons of the arts. The baroque style reflected the concerns of the age, which was one of relative stability, in which wealth and strong personal emotion were reflected.
- The Power Hierarchy	A powerful middle class sector of wealthy merchants (who were patrons of the arts, including city building) developed in response to colonialism and trade. These various works reflected their perception of their own wealth. During this period Europe was controlled by strong dynasties of rulers. In the European states during the first half of the seventeenth century worldly control was consolidated together with the increase of absolutism, thus confining the populace to the religion of the sovereign. The city building processes were a reflection of the opulence and ornateness evident among the sovereignty. The interiors were particularly lavish and ornate eg. the Church of Il Gesu, which has a relatively plain facade in comparison to the interior. The Versailles Palace reflects the notions of absolutist imperialism through the intricacy of design and the monumental and complex architectural produce. Clashes occurred between the Protestant movement and the sovereign religion of the ruler, and where Catholicism remained disputes of power occurred between absolute monarchs and Popes. In the religious buildings the opulence which has been exhibited in these structures typify the opulence of the sovereignty.
- Culture	

ELEMENTS OF THE PUBLIC REALM	THE ENLIGHTENMENT 1700 AD - 1800 AD
URBAN SPACE	
- Squares	
- Streets	The avenues were created primarily for the use of the rich and the pavement was smoothed out and springs and cushions were added to the wheeled vehicle for the comfort of the upper income sector, who kept horses and carriages as a mark of their commercial and social success.
- Parks and Gardens	The pleasure garden, such as Ranelagh Gardens in London in the seventeenth century and Vauxhall Gardens in the eighteenth century were attempts to supply the more liberal pleasures of the court to the commonalty at a reasonable price per head.
- Vacant Land	
- Meeting Place	
- **INDOOR/INTERIOR SPACE**	The architectural style of rococo was primarily a style of interior design. Its decorativeness applied mainly to furniture and decor. German rococo exhibited the stucco decoration of floral branches in a pseudo-naturalistic effect. eg. the Music Room, G.H. Krohne (1742-51).  **Figure H.1.** : The Music Room **Source** : Sporre, D.J. Op. cit, p.366.

ELEMENTS OF THE PUBLIC REALM	THE ENLIGHTENMENT 1700 AD - 1800 AD
	Refinement and delicacy characterized the interiors. In the Sans Souci Palace (1745 - 47) the interior reveals a return to classical tradition with their curving colonnades and Corinthian columns, which add an interesting contrast to the rococo background.  **Figure H.2.** : Music Room of the San Souci Palace. **Source** : Sporre, D.J. Op. cit, p.370.
INTERFACE	
CITY PLAN (layout)	The layout tended to be military in nature, conspiring to the advantage of the upper classes. The avenue determined the shape of the house-plot and the depth of the block.
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	THE ENLIGHTENMENT 1700 AD - 1800 AD
- Residential	During the Rococo style, townhouses generally possessed minimal exterior decoration. Neo-classicism reflected an interest in English villa architecture. eg. Jefferson, between 1710-1750.  **Figure H.3.** : Monticello, Charlottesville. **Source** : Sporre, D.J. Op. cit, p.368.
- Religious	
- Administrative	The Sans Souci Palace (1745-47) represents a new stylistic phase in the eighteenth century, (French rococo style and Italian Baroque style).  **Figure H.4.** : Garden front of San Souci Palace. **Source** : Sporre, D.J. Op. cit, p.372.
- Political (Military)	
- Historical	
- Educational	New sciences for classification and codification were developed, namely rocks, minerals and plants.
- Recreational	The Royal theatre at Versailles (1742) contained an elaborate system of pneumatic jacks, so that the entire floor could be raised to stage level as well as an intricate plumbing system for the fountains and jets.
- Retail	
- Commerce/Office	
- Industrial	

ELEMENTS OF THE PUBLIC REALM	THE ENLIGHTENMENT 1700 AD - 1800 AD
GENERAL i.t.o built form	
- Scale and mass	
- Materials	
- Walls and Facades	In the building facades, a combination of elements of various styles (i.e. the eclectic concept) is evident eg.Jefferson, Rotonda of the University of Virginia, (1819-28). The complex interrelationships of the colonial architecture are reflected in Jefferson's designs.  **Figure H.5.** : Rotunda of the University of Virginia. **Source** : Sporre, D.J. Op. cit, p.367.
INFRASTRUCTURE	
MOVEMENT (physical connections)	
Movement as a consequence of form	
Movement as a generator of form	
VIEWS, VISTAS AND SKYLINES (visual connections)	
ORIENTATION	
NATURE	Nature has been incorporated into the design of the Sans Palace (1745-47), as well as the use of stylistic plants on the facade of the Palace.  **Figure H.6.** : Garden front of San Souci - engraving. **Source** : Sporre, D.J. Op. cit, p.372.
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE ENLIGHTENMENT
- Technology	Belief in science, in natural human rights, in human reason, and in progress, were cornerstones of eighteenth century thought. The development of new disciplines occurred as a result of the rapid increase of scientific interest and discovery that followed Newton. Science and technology were synonymous. The barometer and the thermometer were discovered. By 1769 James Watt had patented a steam engine, which caused an acceleration in the invention of machines, and paved the way for the Industrial Revolution at the end of the century. Significant improvements in agricultural technology were evident during the seventeenth and eighteenth centuries. The use of coal fuel in place of charcoal revolutionized metallurgy. The various related improvements in metallurgy later resulted in the development of steel and iron as structural elements. Advances were also made in the field of instrument manufacture in terms of the skills and materials used (eg. lens development in telescopes and compound microscopes). Improvements in precision tooling and the introduction of cams and templates allowed for greater accuracy and intricacy in production. Advances in hydraulics, road building and bridge construction were evident. The textile industry in England was revolutionized in the late eighteenth century with the introduction of power machinery.
- Political life	
- Ecclastical (of the church)	
- Secularism	Enlightenment, reason and progress were responsible for making the eighteenth century the age of secularism. Emphasis was placed on politics and business, outside of the realm of religion. Descarte's Cartesianism philosophy based on the contention that human reason can solve every problem facing mankind, was brought to light. During the late eighteenth century, empiricism became the predominant philosophy. Aesthetics was utilized for the first time to refer to the study of beauty and theory of art. There were three significant concepts profoundly influenced eighteenth-century architecture. Firstly, the archaeological concept, which perceived enrichment through continual inquiry into the past. Secondly, was the eclectic concept which enabled artists to combine elements of various styles. Thirdly, the modernist concept perceived the expression of the present in individualistic terms.
- Concentration of power political economic religious	
- The Power Hierarchy	The enlightenment was an age of secularism with a movement of prestige away from the Church as evident in the city building of the period in which a focus was placed on secular architecture as opposed to religious architecture. Politically, the German states were in a constant state of flux and unrest in the eighteenth century. Frederick William who succeeded his father in Prussia promoted the notion of city building by compelling the wealthy (or those suspected of wealth) to build a fine residence in order to improve the appearance of the city. In the second half of the eighteenth century Prussia and Austria emerged as significant centres of artistic, literary and intellectual activity. In the early eighteenth century the belief of "sociability", refinement and delicacy became evident in city building in France (in particular) and elsewhere. Generally, the upper classes of society were well educated as this was considered essential for all members of this category, which obviously put them in a more advantageous position than the poorer sectors, who tended to be relatively uneducated. Thus, the wealthy power elites were responsible for the embellishment of city building eg. the Sans Souci Palace (1745 - 47) and other grand residences (such as those built by Jefferson).
- Culture	

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
URBAN SPACE	
- Squares	
- Streets	Space which was left over after development was allocated to the street.
- Parks and Gardens	Within the industrial housing areas, there was an absence of open spaces for children's playgrounds and gardens, which detracts from the ambience of the city.
- Vacant Land	
- Meeting Place	
- INDOOR/INTERIOR SPACE	In the industrial areas, the interior light was insufficient as a result of the small, narrow windows. In addition to this no attempt was made to orientate the street pattern in accordance with the sunlight and winds.
INTERFACE	Savannah's Isaiah Davenport House (1815), Bunnell's Belamy Mansion (1859)

Figure I.1. : Davenport House.
Source : Sporre, D.J. Op. cit, p.423.

and Owens-Richardson House in Savannah (1817-19)

Figure I.2. : Owens - Richardson House.
Source : Sporre, D.J. Op. cit, p.422.

all cater for the transition from public, to semi public, to semi private to private as one moves from the street, up steps to a raised porch and into the house.

CITY PLAN (layout)	
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
- Residential	The classical revival was evident in various examples of domestic architecture in the United States. eg. The Belamy Mansion in Wilmington, North Carolina (1859), which is well proportioned being offset by a large portico, together with Corinthian columns which uphold a monumental cornice and pediment.

Figure I.3. : Belamy Mansion.
Source : Sporre, D.J. Op. cit, p.422.

The house is raised approximately five feet off the ground and crowned by a rectangular cupola. The federal style of classical revival architecture can be perceived in Savannah's dignified Isaiah Davenport House. The federal style is defined by delicate fan-like doorways, thin cornices, plaster interiors and extended columns and pilasters. Another example of classical revival style was the English Regency style of Romantic classicism exemplified by the Owens-Richardson House in Savannah (1817-19). The underlying inspiration of classical antiquity is clearly evident. Residential dwellings tended to be placed in the left-over spaces between factories, sheds and railway yards. Overcrowding was evident amongst the working class, who were living in degraded conditions.

- Religious	Many ancient prototypes were resurrected during this age, eg. Benjamin Latrobe's Catholic cathedral in Baltimore (1805-18) where "classical" forms (Greek and Roman) have been significantly altered with the addition of numerous individualized details. Traditional Roman semicircular arches have been incorporated, however, these have been flattened and also broken by cantilevered balconies.

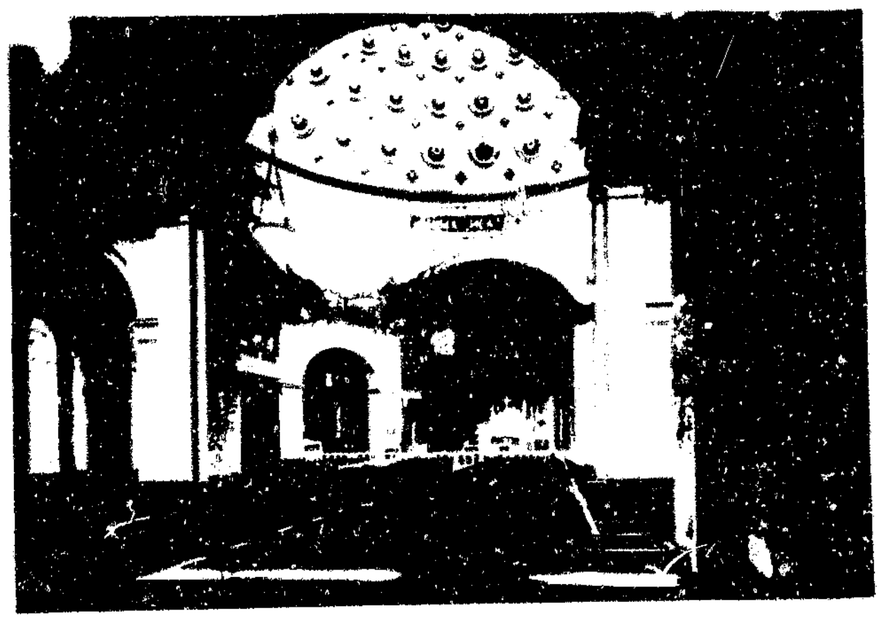


Figure I.4. : Basilica of the Assumption, Baltimore.
Source : Sporre, D.J. Op. cit, p.421.

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
- Administrative	The Houses of Parliament, England (1839-52) typifies the Picturesque style, in which the totally symmetrical balance and strong contrast of forms are evident.

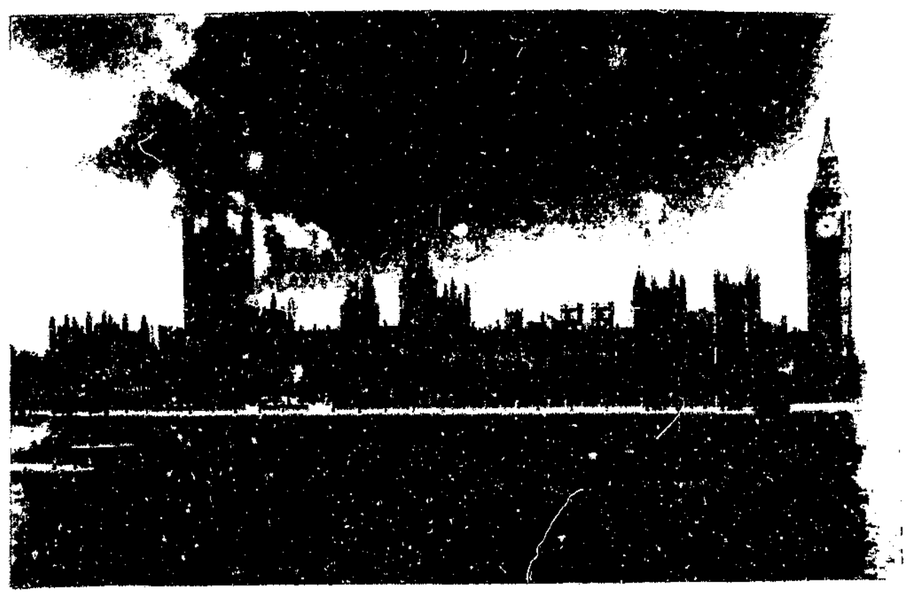


Figure I.5. : Houses of Parliament, London.
Source : Sporre, D.J. Op. cit, p.424.

John Nash's Royal Pavilion in Brighton, England (1815-23) reveals a strong Eastern influence as reflected in the bulbous domes and the intricacy of architectural features.

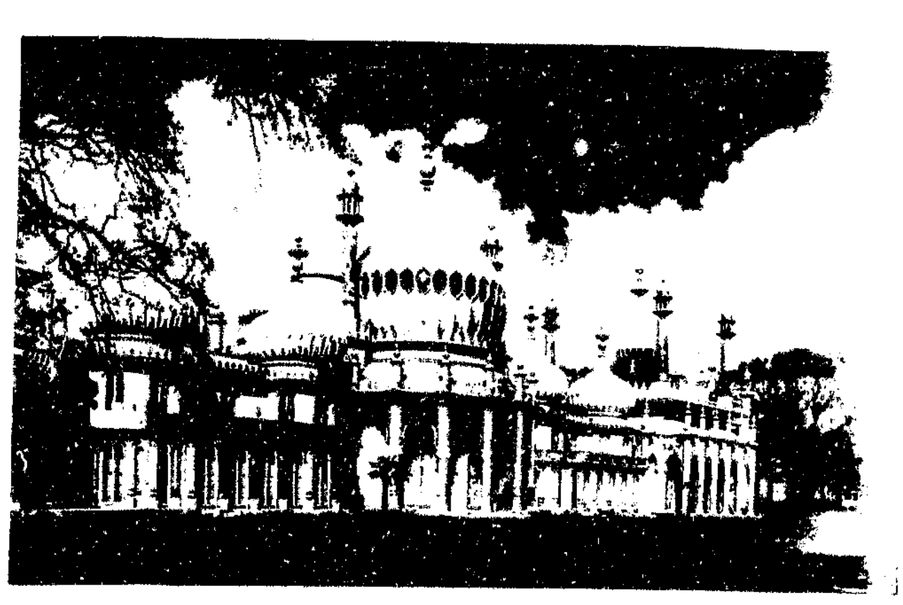


Figure I.6. : Royal Pavilion.
Source : Sporre, D.J. Op. cit, p.424.

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
	England's Crystal Palace (1851) reveals a fascination with experimentation and new materials. Glass and steel were utilized and the architect took the initiative to actually display the support materials, which became part of the design. The utilization of the principle of indoor/outdoor fusion has potential for the creation of new types of future urban spaces (spaces that are responsive to energy needs, year-round usage and integration of the landscape)  **Figure I.7.** : Crystal Palace. **Source** : Sporre, D.J. Op. cit, p.425.
- Political (Military)	
- Historical	
- Educational	
- Recreational	

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
- Retail	The Carson, Pirie and Scott Department Store, Chicago, (1899-1904) is an example of where the form of the building follows the function in a straightforward manner, which ultimately created a rubric for modern architecture.

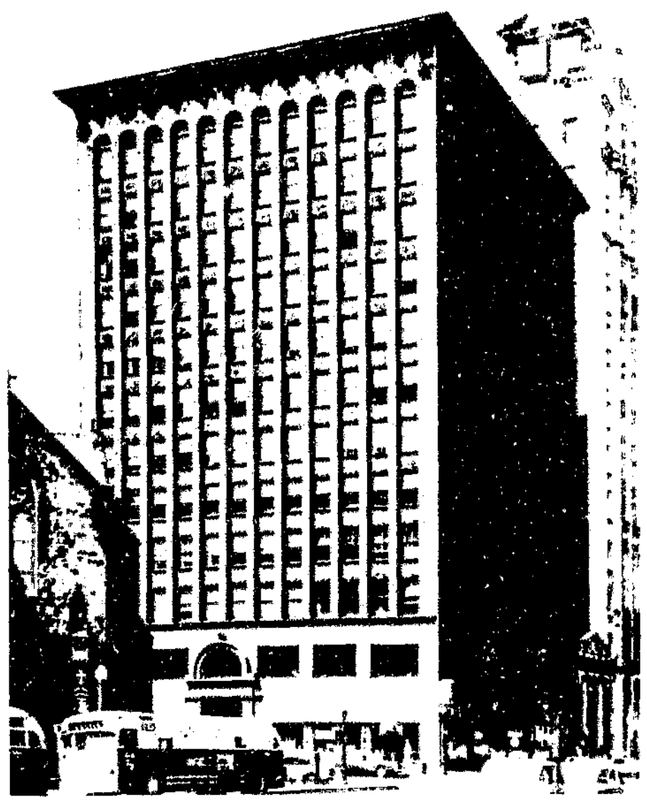
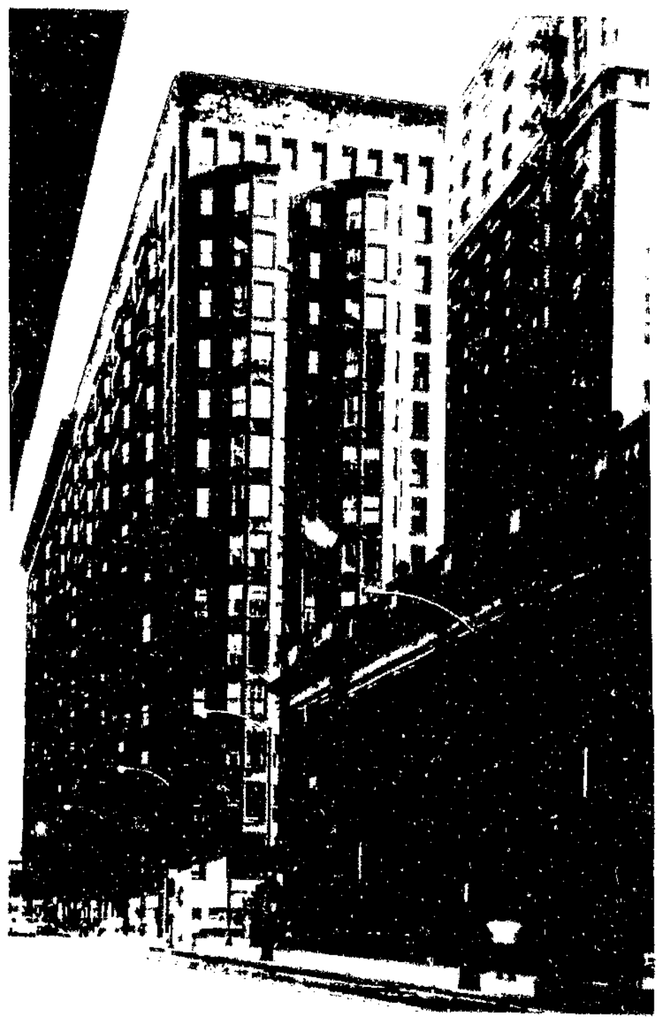


Figure I.8. : Carson, Pirie, Scott Building.
Source : Gardiner, H. Op. cit, p.802.

This department store became in effect a multi-storeyed market-place, as a result of the diverse number of wares concentrated under one roof at one time. In addition to this it served as an enormous World's Fair of art and industry in which all exhibits were for sale. The retail structures of this era tended to take shopping off the street. The notion of the arcade was proposed by James Silk Buckingham , he projector of a model Victorian town, and Ebenezer Howard in his first outline of the Garden City.

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
- Commerce/Office	The Monadnock Building, Chicago (1889-91), was an example of a prototypical "skyscraper" of the period, which is all masonry requiring increasingly thick walls at the base of the building.  **Figure I.9.** : The Monadnock Building. **Source** : Sporre, D.J. Op. cit, p.426.
- Industrial	Coal and iron were particularly important to many subsidiary and accessary industries. Generally there tended to be a concentration in the coal areas, where the new heavy industries, such as , iron and coal mining, smelting, cultery, hardware production, glass manufacture, and machine-building flourished. The massing of industries began to have a negative effect upon environmental conditions. Within these industrial cities there was a mixture of industrial, commercial and domestic functions.
GENERAL i.t.o built form	
- Scale and Mass	The Picturesque style of architecture of the age, exhibited a strong emphasis on scale. England's Crystal Palace (1851) and the Houses of Parliament (1839-52), were constructed on a large scale, being spatially expansive and acting as an expansive screen, respectively. In the Crystal Palace (1851) space was defined by a three-dimensional grid system of iron stanchions and girders (specially for mass production and rapid assembly).
- Materials	The age of industry was accompanied with an experimentation in new buildings, namely glass and iron as exemplified in England's Crystal Palace (1851). (See Figure I.7.).

ELEMENTS OF THE PUBLIC REALM	THE AGE OF INDUSTRY 1800 AD - 1900 AD
- Walls and Facades	In the Houses of Parliament, England (1839-52), the exterior facade acts as a screening device, which exhibits no conformity with the interior arrangement of space. (See Figure I.5.). The final years of the nineteenth century, saw the evolution of a new form of decorative architecture, namely Art Nouveau. The style reflects an interest in plant and animal life and organic growth, in which lively, serpentine curves characterize form. eg. in the Samaritaine Department Store, Paris, 1905)

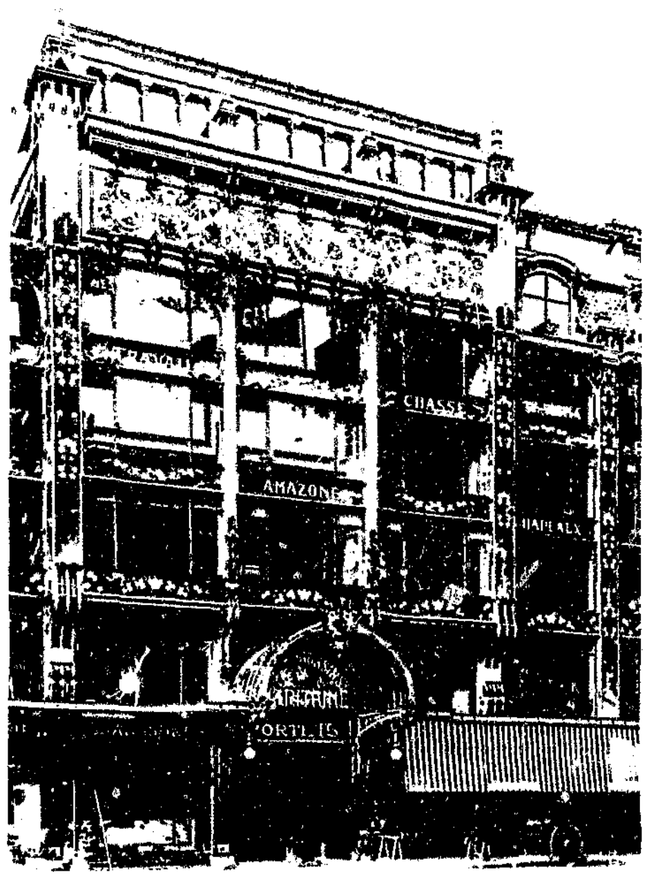


Figure I.10. : Samaritaine Department Store, Paris.
Source : Sporre, D.J. Op. cit, p.427.

and Horta's Tassel House, Brussels (1892-3).

Figure I.11. : Tassel House.
Source : Sporre, D.J. Op. cit, p.427.

In both these examples, an emphasis is placed on the use of curvilinear, undulating form.

INFRASTRUCTURE	The 'Report of the State of Large Towns and Populous Districts (1985)' states that in one part of Manchester in 1843-4, there was one toilet per 21,1 people in a town with ± 700 inhabitants. In the early industrial towns, the most elementary traditions of municipal service were non-existent. Later a collective water system and other infrastructural improvements became available to the middle and upper income groups, and not to the general mass of the population.
MOVEMENT (physical connections)	
Movement as a consequence of form	Amongst the dwellings of the working class, the space which was left over was allocated to the street and not to open space.
Movement as a generator of form	The new railway transportation system abetted the increase in the area of urban congestion. For the new railraod engineers the movement of trains was more important than the human objects achieved by this movement.
VIEWS, VISTAS AND SKYLINES (visual connections)	Gas tanks and factory chimneys towered above the city, polluting the air and dominating the skyline.
ORIENTATION	
NATURE	
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE AGE OF INDUSTRY
- Technology	The spirit of invention characterized this period. Experimentation with energy types and energy usage was evident during the early years of the nineteenth century. In the first two decades of the nineteenth century significant developments in engine design occurred (eg. the compound engine, steam turbines and internal combustion engines). Mining production was increased by the introduction of new explosives, together with the introduction of more efficient ore extraction and separation methods. These improvements, however, were surpasses by the invention of the flotation method in 1877. Significant improvements in the production of iron and steel were evident (eg. the introduction of the blast furnace, Bessemer steel and further quality refinements). The textile industry was the initial industry to benefit from the Industrial Revolution. Machine technology also filtered into the home and the office, with the introduction of various labour-saving inventions. Technology made a tremendous impact on the agricultural sector, with the increase in production capacity, due to mechanization and the creation of global markets, due to improved transportation networks. In the middle of the century the process of pasteurization was discovered, together with Hermetic sealing which was widespread by the 1840s. The harnessing of electricity was another major aspect of the technological revolution which was applied to heating, lighting and mechanical energy. Technological advances resulted in a dichotomy between function of a building and structure. Late in the period the skyscraper was created in order to cater for the increasing need of commercial space on limited property..
Political life	A new class of machine workers was created, namely the blue-collar workers, who were subjected to horrifying living conditions, hampered by lack of education and constantly threatened by the prospect of unemployment. Liberalism was widely supported initiated through middle-class interests. Differing solution were proposed to the working class problem (eg. Philanthropy, utopianism and the socialism of Karl Marx).
- Ecclastical (of the church)	There was the occurrence of clash between evolution and Christianity.
- Secularism	Capitalism gradually replaced the guild system. The establishment of evolution as the framework within which scientific exploration of the universe occurred.
- Concentration of power political economic religious	Evidence of Napoleon's endeavors, which included the creation of the Napoleonic Code and the establishment of a system of education. The Franco-British War (1803), Napoleon's rise to emperor (1804), his great sweep across Europe and "America's war with Britain (1812) were all significant events of this age. Wars and revolution continued through France, Europe, and the United Stated. These hostilities were finally brought to a halt by the Treaty of Versailles in 1871. The political base of this era rested on three main pillars: firstly, the removal of the guilds which created insecurity amongst the working classes, secondly, the establishment of the competitive market for labour and the selling of goods; thirdly, the maintenance of foreign links as a source of raw materials, essential for new industries and the absorption of surplusses within the mechanized industry. Urbanization actually rose in almost direct proportion to the level of industrialization.

INFLUENCES	THE AGE OF INDUSTRY
- The Power Hierarchy	In this era the process of city building was liberated from the control of patronage, with a strong reaction against the styles of the predecessor and an increased pace of change in all domains of activity. A major social development was the rise of the middle class who gained most from the replacement of the guild system with capitalism. Eventhough, capitalism as an economic system spread wealth throughout the social strata, the majority of economic control and wealth was centred in the hands of a restricted group of capitalists. eg. The Houses of Parliament, in London (1839 - 52) reveal a display of wealth of those possessing political power. The class of blue-collar workers was created, who lived under deplorable conditions in which they became virtual slaves accompanied by their fears of unemployment. The middle class who were constantly trying to fulfil their own wealth and political ideals, were ignorant of the blue-collar workers. Instead the middle-class promoted Liberalism, which aimed at reducing the authority of a dominant church and the power of a king and/or aristocracy, and removing economic barriers (i.e. ultimately enhancing middle-class power and aspirations). Individual freedom was the goal of human endeavour (namely, survival of the fittest). Eventually compulsory public education was introduced to alleviate the conditions of the degraded masses. The right to form unions was allowed together with the proposition of various ways to deal with the problems of the working class. Conflict arose between the new theories of Evolution and Christianity. The Act of the Congress of Vienna was introduced after Napoleon's defeat to prevent the control by factions of the old aristocracy. The Treaty of Versailles was a later means of restoring peace and halting hostilities. The nineteenth century was the first time in which artists could exist without the support of significant aristocratic and religious commissions or patronage. This freedom from patronage and commissions encouraged individuality in the city building process, which enhanced emotion and the individuals value system. eg. Jourdain's Samaritaine Department Store (1905).
- Culture	The classical revival (Greek and Roman) is typified in numerous architectural forms during this age. The Japanese influence is also evident later in the nineteenth century, in the undulating curves of the Art Nouveau style. The spirit of England's great queen, Victoria, exhibited an influence which was felt in the continent of Europe and even America

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
URBAN SPACE	
- Squares	
- Streets	
- Parks	
- Vacant Land	"Holding actions" is a relatively new concept, which refers to the reservation of options for future generations. Crane (1964) makes reference to this concept of land reservation, in close proximity to the city, which will ultimately cater for the expanding needs of the city, relative to increasing urbanization. "Holding actions" increase flexibility and robustness within urban design, allowing for decisions to be made in future times when issues become clearer.
- Meeting Place	
- INDOOR/INTERIOR SPACE	All spaces and objects were designed with the aim of producing a complete environment, during the era of modernism. In the Pompidou Centre (1971-78) which is part of the Post-modern era, the interior space is flexible and arranged by means of temporary dividers.

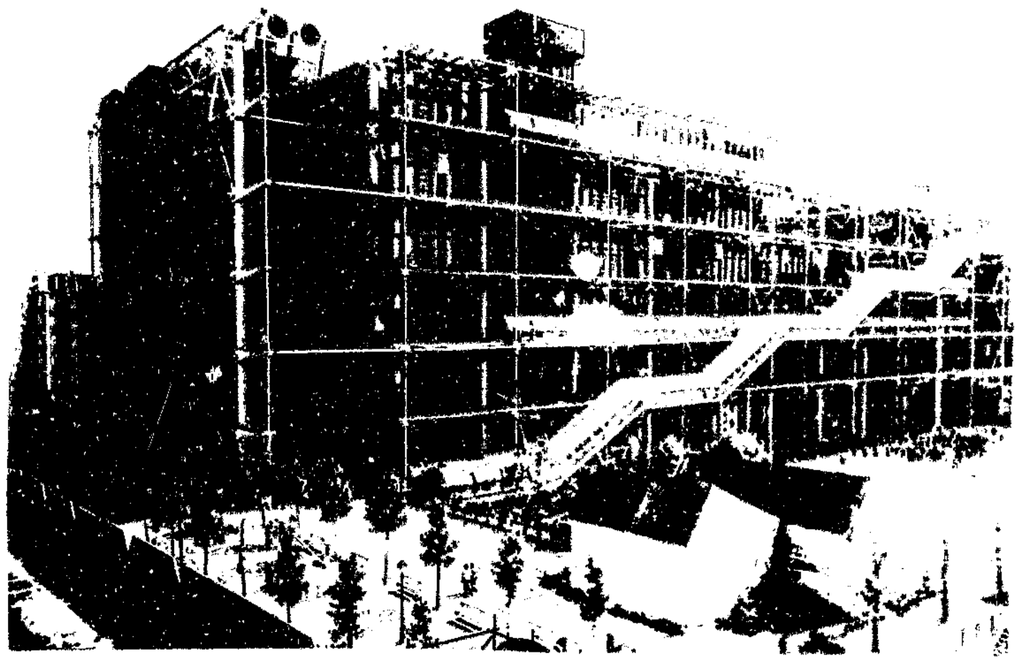
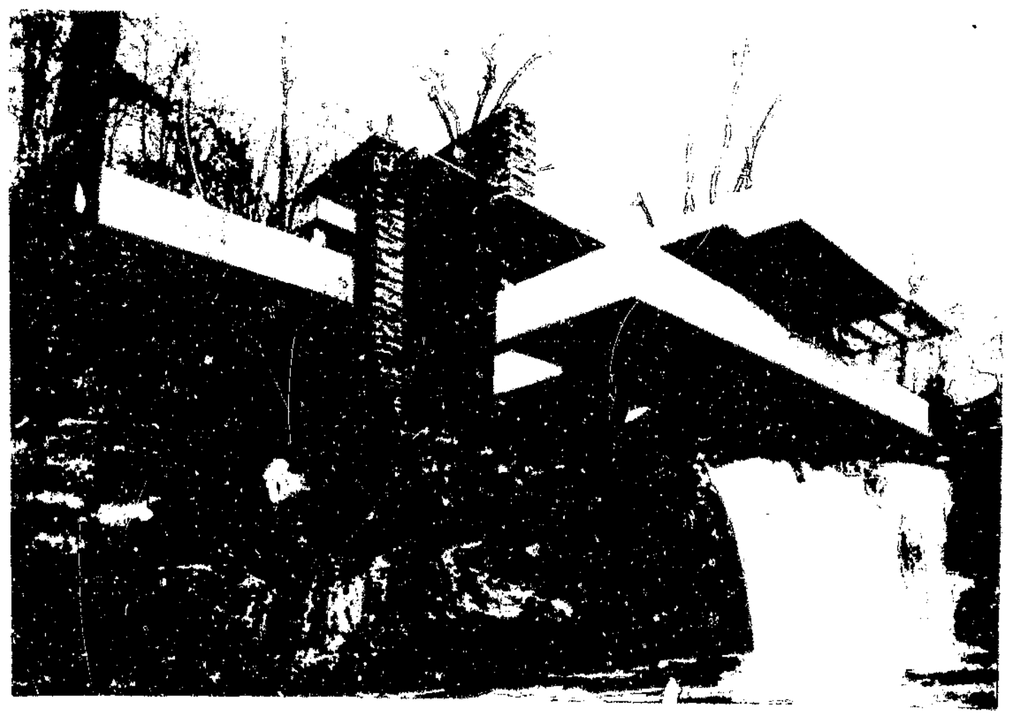


Figure J.1. :Pompidou Centre.
Source : Sporre, D.J. Op. cit, p.497.

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
INTERFACE	An attempt was made to reflect the interior arrangement of space in the exterior form of the building. eg. Wright's Prairie Houses, namely Robie House and Kaufmann House.  **Figure J.2.** : Robie House, Wright. **Source** : Sporre, D.J. Op. cit, p.490.  **Figure J.3.** : Kaufmann House, Wright. **Source** : Sporre, D.J. Op. cit, p.490. The interface between the public and private domain has been given careful consideration in Le Corbusier's Villa Savoye (1928-30), through a domino system of design, using a series of slabs and columns.
CITY PLAN (layout)	
BUILT FORM (relative to the public realm)	

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
- Residential	Art Nouveau extended into the twentieth century, as evident in Gaudi's town houses, namely the Casa Batllo, Barcelona (1905-7).

Figure J.4. : Casa Batlló.
Source : Sporre, D.J. Op. cit, p.489.

The curvilinear architectural forms create the impression of the building in motion. A movement towards individualism can be perceived in these town houses. Wright attempted to create a complete environment in terms of space and objects. Wright believed that the environment in which one lives, has a profound influence on one's life. Wright perceives the harmonious interrelationship between the built form and the contextual setting as being very important, as in Kaufmann House, Pennsylvania, (1936-37). (See Figure J.3.). Corbusier conceived a house as being "a machine to be lived in" as exemplified in his Villa Savoye, France (1928-30).

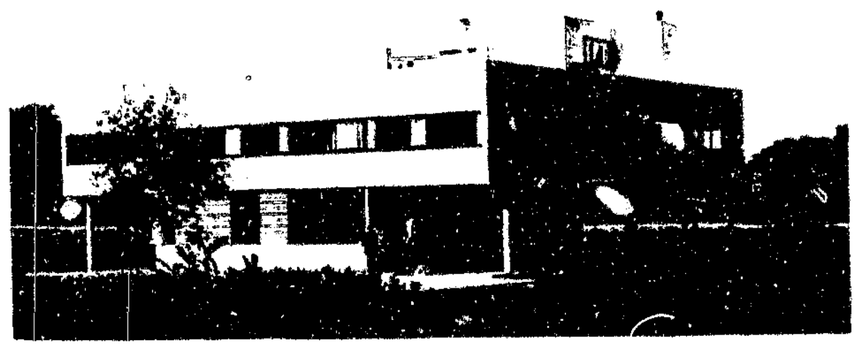
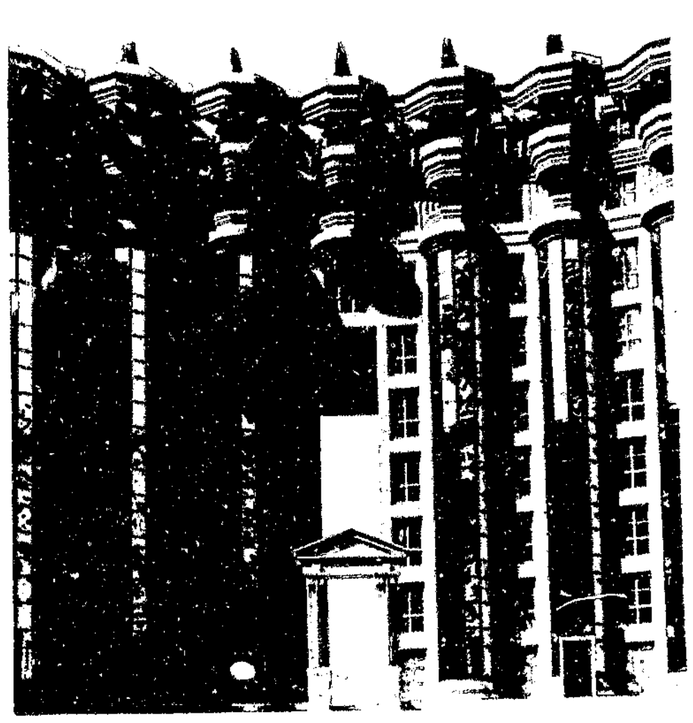
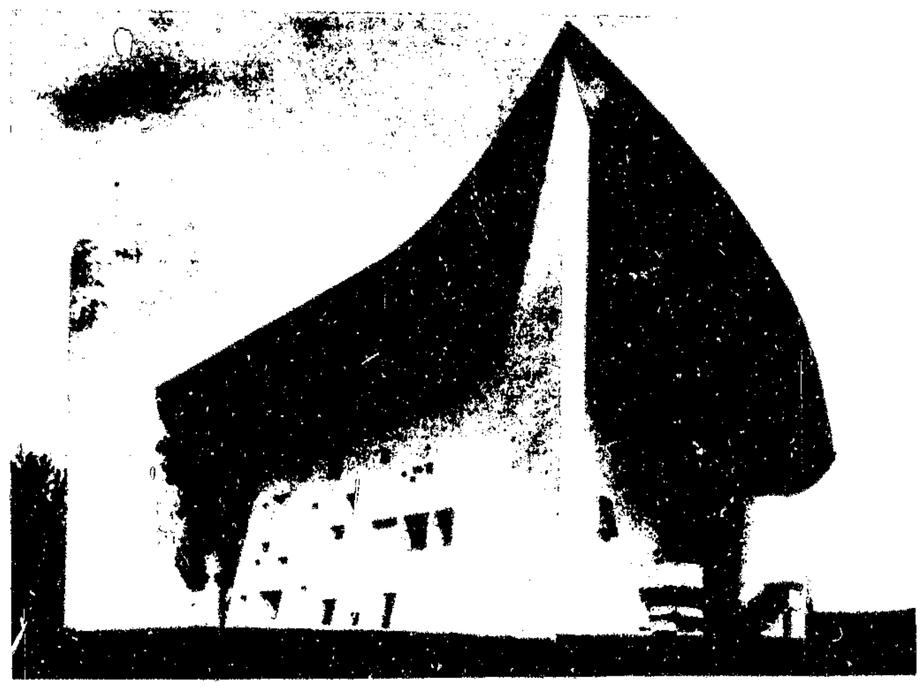
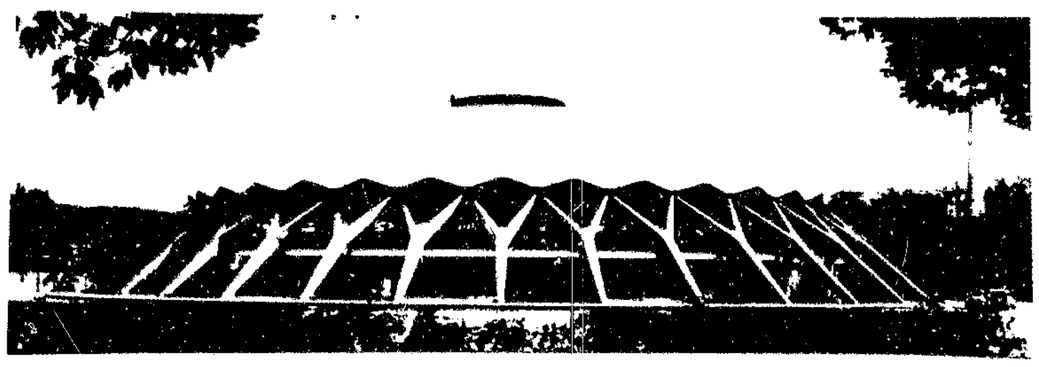
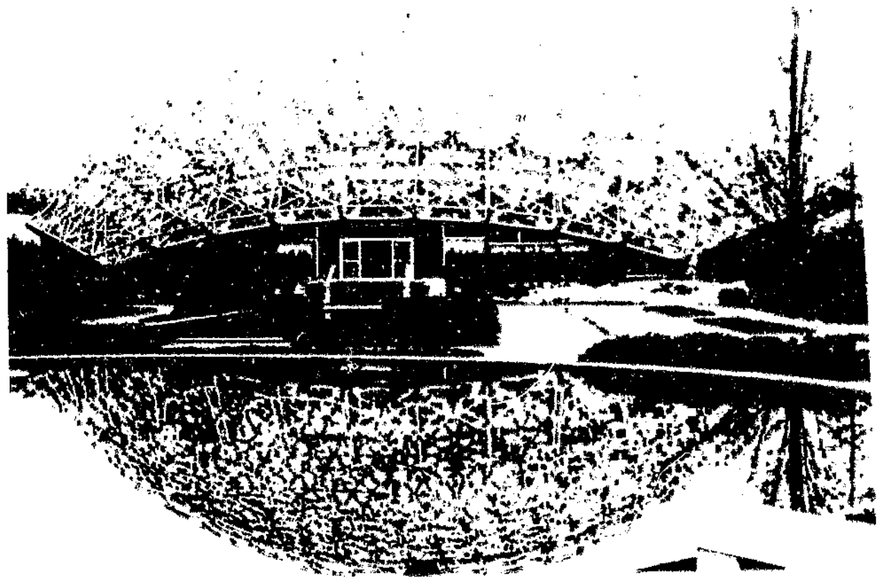


Figure J.5. : Villa Savoye.
Source : Gardiner, H. Op. cit, p.852.

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
	This machine notion referred to efficient construction from standard, mass-produced parts and the logical design in terms of usage. Le Corbusier was particularly concerned with the integration between structure and function, in a totally unified and coherent whole. Bofill's public housing scheme near Paris (1978-83) is a post-modern example which incorporates themes from the past, namely the characteristics of classicism, suggested through the columnar verticality and through the cornice/capitals.  **Figure J.6.** : Tha Palace of Abraxas. **Source** : Gardiner, H. Op. cit, p.496.
- Religious	Le Corbusier's dynamic church, Notre-Dame-du-Haut, France (1950-54)  **Figure J.7.** : Notre-Dame-du-Haut, from the south-east. **Source** : Sporre, D.J. Op. cit, p.495. adopts the dramatic shape of flight through the curvilinear walls, juxtaposed rectangular windows and the encompassing curved roof, which further enhances the spiritual feeling (i.e. the spatial form reflects the function of the building).
- Administrative	
- Political (Military)	

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
- Historical	Frank Lloyd Wright's Guggenheim Museum, New York (1942-59) where the exterior space of the building reflects the function of the building. eg. the spiral space reflects the leisurely process one should adopt when moving through a museum.  **Figure J.8.** : Guggenheim Museum. **Source** : Sporre, D.J. Op. cit, p.495.
- Educational	Correspondence facilities have become important devices, which unfortunately do not contribute towards the public realm.

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
- Recreational	Pier Luigi Nervi's Small Sports Palace, Rome (1957) exemplifies the need for free space, taking the simple curvilinearity of the arch and the dome, and the materials to new heights.  **Figure J.9.** : Pier Luigi Nervi Small Sports Palace. **Source** : Sporre, D.J. Op. cit, p.496. Buckminster Fuller's Climatron (1959) is another example which tends towards spansion architecture.  **Figure J.10.** : Climatron, Fuller. **Source** : Sporre, D.J. Op. cit, p.496.
- Retail	

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
- Commerce/Office	Gordon Bunshaft's Lever House, New York, (1950-2) is an example of the age of modernism. In this instance the tower is set back from the property perimeter, thus creating its own open space envelope of environment or context around the tower. Mies van der Rohe and Philip Johnson's Seagram Building (1958) expressed the contemporary notion of rectangularization, which was reinforced through the utilization of mass produced materials at face value, namely, brick, glass and manufactured metals.

Figure J.11. : Seagram Building.
Source : Sporre, D.J. Op. cit, p.494.

According to Mies van der Rohe, it was important for the architect to state the function of the building, which should not be an end in itself. Micheal Graves has created a metaphorical allusion to the keystone of the Roman arch in his public office building in Portland (1979-82). The red pilasters suggest fluted columns and the fibreglass garlands resemble elements from the period of art deco and rococo.

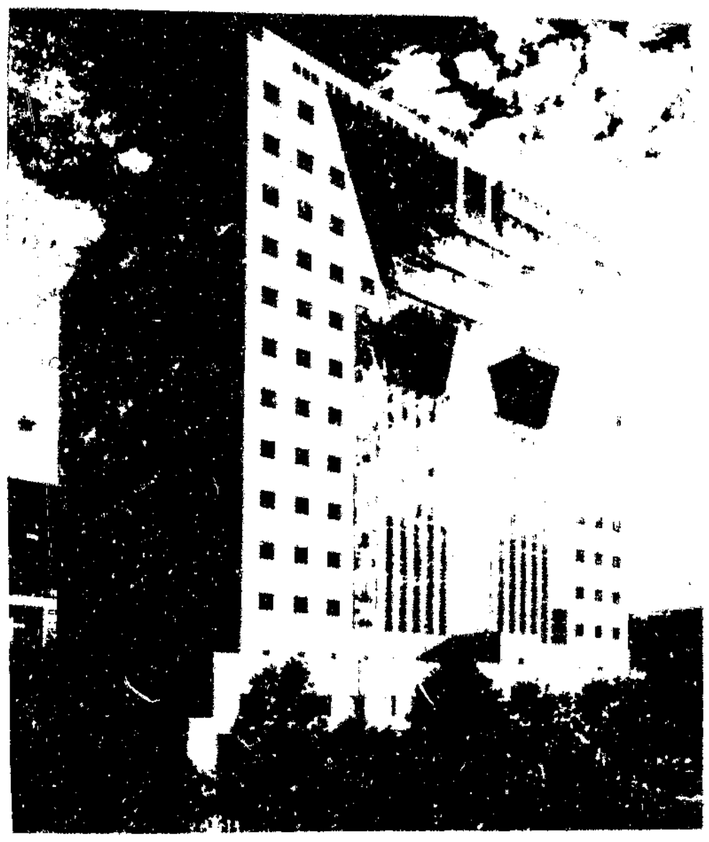
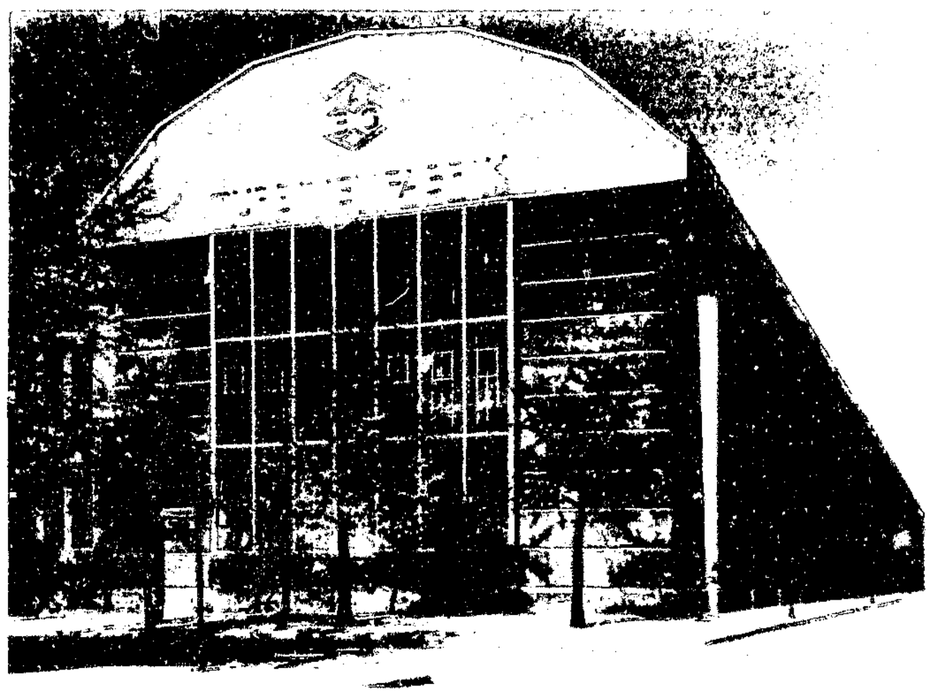


Figure J.12. : Portland Public Office Building.
Source : Sporre, D.J. Op. cit, p.497.

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
- Industrial	
GENERAL i.t.o built form	
- Scale and Mass	The utilization of concrete with glass achieved a certain elegance, strength and lightness. eg. in Perret's Garage Ponthieu, Paris (1905-6). Le Corbusier's Villa Savoye (1928-30) incorporates a human scale and precisely articulated parts in a coherent whole, revealing the classical Greek inspiration. During the Bauhaus era spatial imagination became the primary objective. During the modernism period, the rectangular tower form has been largely used (eg. Burshaft's Lever House. (1950-2)  **Figure J.13.** : Lever House, New York. **Source** : Sporre, D.J. Op. cit, p.493. and Mies van der Rohe and Philip Johnson's Seagram Building (1958)).
- Materials	The twentieth century was dominated by a fascination with building materials in terms of structural expression. New formulas for building with ferroconcrete were developed by Auguste Perret (1874-1954). Concrete structures with glass or ceramic panels emerged during this century. During the era of modernism, glass and steel comprise the majority of architectural form. (i.e. the glass-and-steel box approach which still continues today). In Burshaft's Lever House (1950-2) aluminium and metallized windows have been used to achieve a glazed exterior appearance. The trend towards spansion architecture stretches the engineering properties of materials to the limits eg. Pier Luigi Nervi's Small Sports Palace (1957), Buckiminster Fuller's Climatron (1959) and the Kansas City Hyatt Regency Hotel which focused on practicality.

ELEMENTS OF THE PUBLIC REALM	THE TWENTIETH CENTURY 1900 AD - 1990AD
- Walls and Facades	The exterior of the architectural form was related to the environmental context, whilst reflecting the interior arrangement of space. eg. Wright's Prairie houses, namely Robie House and Kaufmann House. The facades tend to exhibit minimal or no decoration, as in the A.E.G. turbine factory (1908-09) designed by Behrens, however, the front corners of poured concrete have been striated to resemble masonry blocks.
	 **Figure J.14.** : AEG turbine factory. **Source** : In addition to this, the flat surface of the front facade is broken by the overhanging gabled roof and the window panels which extend forward. The facade reveals an intricate relationship of spaces, as in Le Corbusier's Villa Savoye (1928-30). During the Bauhaus era, the exterior walls serve only as a climatic barrier (no longer structural) being totally free from ornamentation. During the past modern period, ornamentation becomes acceptable and functionalism no longer dominates form. In the Pompidou Centre, (1971-78) the ducts, pipes and elevators form the exterior facade, while concealing the internal structure, which possesses no fixed walls. The bright primary colours of the exterior together with the use of serpentine, plexiglass-covered escalators, give the building a capricious appearance.
INFRASTRUCTURE	
MOVEMENT (physical connections)	
Movement as a consequence of form	
Movement as a generator of form	
VIEWS, VISTAS AND SKYLINES (visual connections)	
ORIENTATION	
NATURE	
FLOORSCAPE (surface contours and materials)	

INFLUENCES	THE TWENTIETH CENTURY
- Technology	Test-tube fertilization and DNA modification have become realities in today's society. Mechanization has assumed world-wide proportions, with the computer becoming the major source of problem solving. During mid-twenties, architecture was based on technological and economic factors, namely the Bauhaus era. The Bauhaus philosophy attempted to establish a harmonious relationship between the organic and technical worlds. The achievement of dynamic balance and geometric purity are the aims of the Bauhaus era. Modernism tends to blur any degree of artistic creation through architectural corporations.
- Political life	
- Ecclastical (of the church)	
- Secularism	Various fundamental scientific concepts have been formulated and reformulated during this century (eg. Quantum Theory, the Theory of Relativity, and atomic theory.) (In 1982, suggestions were made by researchers that Einstein was in error and that the Theory of Relativity required re-examination). Attempts have been made to apply scientific methodology to the social sciences in an attempt to organize this field of study. However, the most significant development in social sciences occurred in the field of psychology. (eg. Skinner, Watson and Freud).
- Concentration of power political economic religious	The Balkan Wars of 1912-13 ignited the First World War, which was resolved in the Treaty of Versailles. The treaty was set up to protect Europe against Germany, however, it failed to achieve this. As a result of the war, European society changed drastically, in which governmental control was imperative in most aspects of society. The Western world experienced a break up of monetary traditions, inflation, taxes and disorderly industrial output. The Russian Revolution made significant contributions in the development of twentieth century politics. The years which proceeded World War 1 were troubled, however distinct advances were made in terms of social democracy and legislation. The decade of the 1920s experienced an economic boom, but in 1929 an economic downfall sent the Western world into the worst economic crisis ever experienced. By 1939 Europe was totally at war, and three years subsequently when Japan attacked Pearl Harbour, the entire world was again overwhelmed by hostilities. On 6 August 1945, the nuclear bomb at Hiroshima, altered the state of the world and humankind's interrelationship with it. Following the peace of the 1940s numerous regional conflicts occurred, such as the Korean War, the Arab-Israeli conflicts, the Vietnam conflict and continual Latin American struggles. Today's business world is ruled by multinational corporations.
- The Power Hierarchy	The process of city building and its expression have been the most dominant in this century than all preceding centuries. Early in the twentieth century the philosophy of Pragmatism emerged which aimed at the pursuit of morals and aesthetic values in a democratic society, seeking to achieve the highest personal fulfilment in education. In terms of city building, this philosophy places an emphasis on aesthetics and democracy. As a result of World War 1 governmental control became imperative in most domains of society democracy did emerge. World War 11 resulted in the acceptance of social inequities within democracy itself and with the struggle between capitalism and international communism. The need for societal rights has been promoted together with the need for minority assimilation, particularly in an economy where wealthy capitalists and corporations rule. C. Wright Mills (1967) believes that the difficulty which the designer faces revolves around the problem of trying to escape the trap of the power elites who control production and distribution. He believes that the main forces which structure city building processes are the private commercial interests. Thus, the urban designer should attempt to deliver the essential public elements of the city to society through democratic, city building processes.

INFLUENCES	THE TWENTIETH CENTURY
- Culture	The Japanese influence is reflected in the simple horizontal and vertical accents in Wright's prairie style buildings eg. Robie House, Chicago (1907 9) and Kaufmann House, Pennsylvania (1936-37). The reliance on the classical Greek inspiration is evident in Le Corbusier's Villa Savoye (1928-30), with the use of human scale and precisely articulated parts. A wave of Gothic skyscrapers were also constructed in the earlier years of the twentieth century. eg. Cass Gilbert's Woolworth Building (1913) and Howells and Hood's Chicago Tribune Tower (1923-25). Contemporary architecture branched in numerous pluralistic directions, often relating back to the past (eg. Ricardo Bofill and Aldo Rossi). Bofill's public housing development (1978-83) typifies juxtaposition of past and present themes. In Japan, post modern architects incorporated the elegance and style of traditional Japanese artists the present built form. Post-modern architecture becomes characterized by social identity, cultural continuity, and a sense of place.

ELEMENTS OF THE PUBLIC REALM	ANCIENT EGYPT Old Kingdom c.2778 BC - 2263 BC Middle Kingdom 2263 BC - 1575 BC New Kingdom 1575 BC - 270 BC
URBAN SPACE	
- Squares	
- Streets	
- Parks	
- Vacant Land	The built up area of the city was encircled by a wall, which ensured the existence of a permanent margin which separated the built up are from the so-called agricultural lands.
- Meeting Place	
- INDOOR/INTERIOR SPACE	Structures in the architecture of Tell el Amarna tend to be open allowing for the penetration of sunlight as opposed to the dark and secret nature of the Temple at Luxor (1417-1397 B.C), for example.  **Figure K.1.** :The Temple at Luxor. **Source** : Sporre, D.J. Op. cit, p.78. The interior of the palace (1570 - 1314 B.C.), at the Tell el Amarna was richly coloured with glazed tiles and painted stone reliefs.
INTERFACE	
CITY PLAN (layout)	The layout of the city, particularly the public buildings was structured around the landscape which served as a model of legibility together with the symbolization of an eternal environmental order.
BUILT FORM (relative to the public realm)	
- Residential	The town of Tell el Amarma was dominated by the large estates of the wealthy, which were laid out in the Egyptian country house style with vast gardens and various out-buildings. The entire estate was totally surrounded by a wall. Smaller dwellings of he less wealthy people were found in between the large estates. Outside the northern suburb of this city, a slum area developed near the grand North Palace.

ELEMENTS OF THE PUBLIC REALM	ANCIENT EGYPT Old Kingdom c.2778 BC - 2263 BC Middle Kingdom 2263 BC - 1575 BC New Kingdom 1575 BC - 270 BC
- Religious	A significant shrine in the first two dynasties was the temple of Khentiamentiu (3200 - 2780 B.C.) the jackal god, which was later assimilated by Osiris.

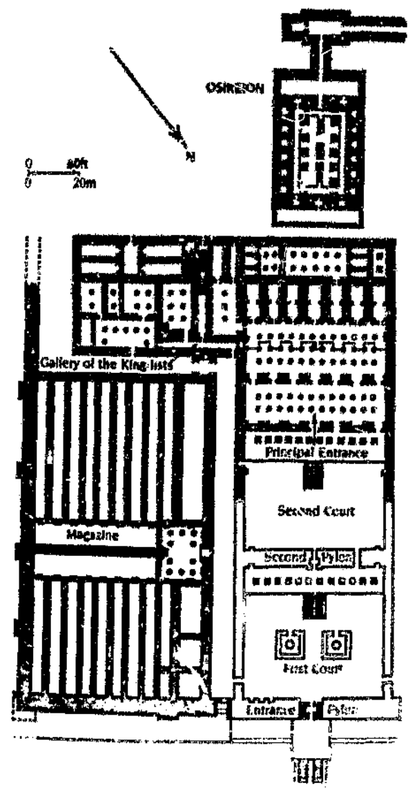


Figure K.2. : Plan of the temple of Khentiamentiu.
Source : Sporre, D.J. Op. cit, p.75.

Osiris' temple remained at Abydos, which became a sanctified location due to its use as a burial place for he kings of Dynasty I. The reconstruction of the Abydos tomb of Merneith (3200 - 2980 B.C.) suggests a low brick structure filled with gravel and surrounded by a wall which enclosed an offering place housing two round-topped stelae.

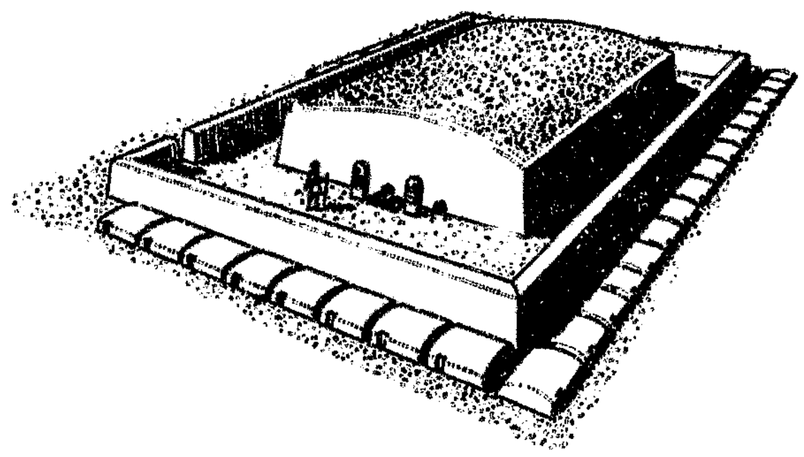


Figure K.3. : Reconstruction of the Abydos tomb of Merneith.
Source : Sporre, D.J. Op. cit, p.75.

ELEMENTS OF THE PUBLIC REALM	ANCIENT EGYPT Old Kingdom c.2778 BC - 2263 BC Middle Kingdom 2263 BC - 1575 BC New Kingdom 1575 BC - 270 BC

Pyramids were reproduced from Dynasties III to XII, encompassing the Old and Middle Kingdoms. The tomb of King Zoser at Saqqara (2780 - 2680 B.C.) was one of the most notable of the pyramids, prior to the great building spree of Dynasty IV. All the buildings (temples, chapels and palaces) were enclosed in a walled enclave. This complex was constructed utilizing the mud brick method.

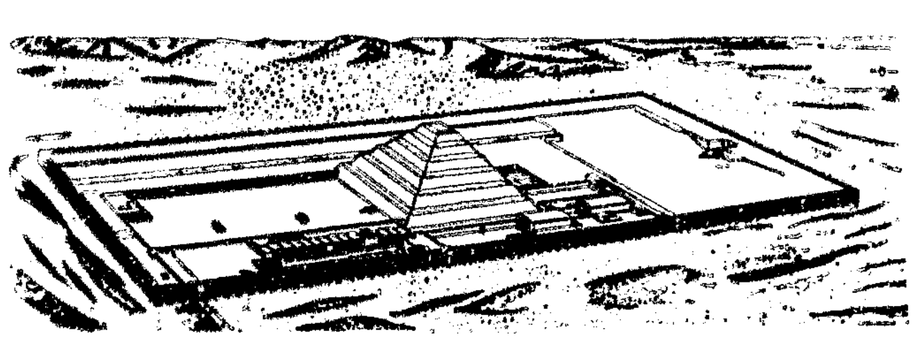


Figure K.4. : Plan of the tomb of King Zoser.
Source : Sporre, D.J. Op. cit, p.77.

Dynasty IV provides the most significant building examples of Egyptian civilization. The Giza pyramid complex

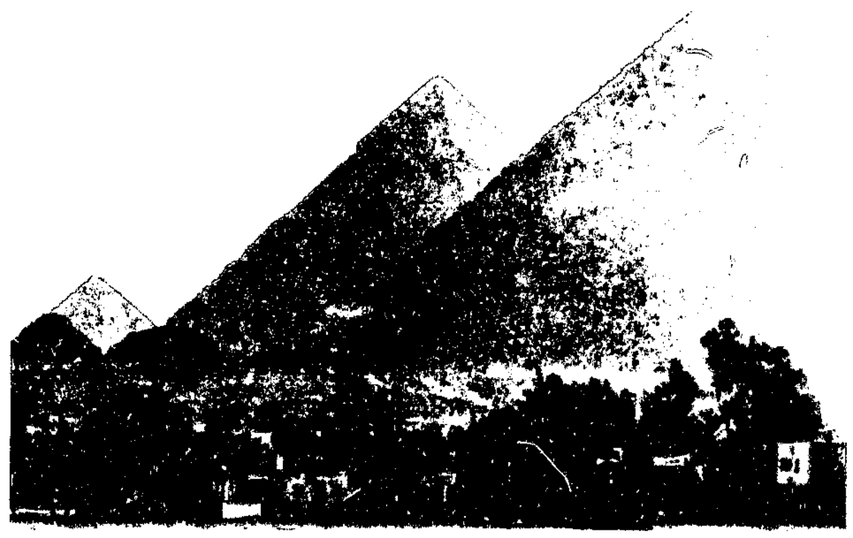
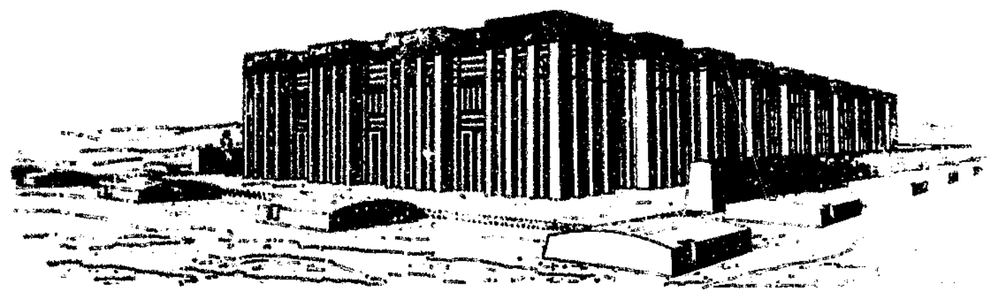


Figure K.5. : Great Pyramids of Giza.
Source : Gardiner, H. Op. cit, p.69.

ELEMENTS OF THE PUBLIC REALM	ANCIENT EGYPT Old Kingdom c.2778 BC - 2263 BC Middle Kingdom 2263 BC - 1575 BC New Kingdom 1575 BC - 270 BC
	incorporated the burial places of almost all the most important individuals of Dynasties IV and V, in addition to the three pyramids, namely the pyramid of Cheops, the pyramid of Chephren and the pyramid of Mycerinus. There was a causeway leading from the funerary temple of Cheops to the pyramid of Chephren (Cheops' son). The Sphinx, Giza (C. 2650 B.C.) is a colossal figure carved from natural rock which signifies the beginning of the causeway of the pyramid of Cheops which connects to the pyramid of Chephren.  **Figure K.6.** : The Sphinx, Giza. **Source** : Sporre, D.J. Op. cit, p.76. The burial chambers of the kings were hidden within the middle of the pyramid. The temple at Luxor, Dynasty XVIII, tends towards the ideology of architecture as practical to mankind in the present as opposed to eternity.
- Administrative	
- Political (Military)	
- Historical	
- Educational	
- Recreational	
- Retail	
- Commerce/Office	
- Industrial	
GENERAL i.t.o built form	

ELEMENTS OF THE PUBLIC REALM	ANCIENT EGYPT Old Kingdom c.2778 BC - 2263 BC Middle Kingdom 2263 BC - 1575 BC New Kingdom 1575 BC - 270 BC
- Scale and Mass	During the pre-historic, pre-dynastic period the architecture was of a monumental character. eg. the reconstruction of the tomb of Merneith, Saqqara (3200 - 2980 B.C.), in which the stability and strength of the Pharaoh is mirrored in this massive and well established design. The strong vertical lines emphasis grandeur, whilst the horizontal building mass creates a sense of stability.  **Figure K.7.** : Reconstruction of the Tomb attributed to Merneith. **Source** : Sporre, D.J. Op. cit, p.74. In the Temple at Luxor, Dynasty XVIII, the balance between open spaces and the mass of the columns gives rise to a magnificent interplay of light and shade. The seven pairs of central pillars in the Hall of Pillars stand nearly 52 feet tall, creating grand proportions and a massive sense of scale. (See Figure K.1.).
- Materials	White limestone was mainly used during the pre-historic. pre-dynastic period. The tomb of King Zoser at Saqqara (2780 - 2680 B.C.) was built utilizing the mud brick construction technique, in which bundles of reeds were used for wall supports together with wooden logs, and wooden beams which acted as ceiling supports. The pyramid of Cheops, Ciza, Dynasty IV (2680 - 2565 B.C) was constructed of irregularly placed, rough-hewn stone, blocks which were carefully covered by a limestone facing approximately seventeen feet thick.
- Walls and Facades	The structural details in the architecture of Tell el Amarna possess a striking originality, eg. the plant ornamentation of columns, papyrus-bundle columns with capitals of clustered, open flowers, sometimes made of alabaster inlaid with blue paint, structures displaying convolvulus vines. Painting was confined to the walls and floors of palaces. Colour, texture, variety and three-dimensionality were characteristic of the Amarna period.
INFRASTRUCTURE	
MOVEMENT (physical connections)	
Movement as a consequence of form	The Temple at Luxor, Dynasty XVIII, is an example whereby one experiences a progression of movement as a consequence of form. Initially one progresses through the palmiform capitals of the vestibule, to the courtyard surrounded by bunched columns, followed by the hypostyle room the Holy of Holies.
Movement as a generator of form	
VIEWS, VISTAS AND SKYLINES (visual connections)	The pyramidal landscape characterizes Egyptian city building. (possessing religious connotations).
ORIENTATION	
NATURE	
FLOORSCAPE (surface contours and materials)	

INFLUENCES	ANCIENT EGYPT
- Technology	
- Political life	
- Ecclastical (of the church)	The King was referred to as a god from the beginning of ancient Egyptian civilization. In Dynasty I the king was considered to be an earthly manifestation of the god Horus, whilst possessing a direct link with the creator sun god. Egyptian religion is composed of a complexity of gods which have been added over the thousands of years of Egyptian dynastic history. Initially, the local deities were represented in the shape of animals, plants or inanimate objects. Later these deities become human but often retain an animal head. Religion was an important focus in Egyptian societal and civil organization and life, in which death was perceived as the doorway to afterlife. Mummification was seen as being essential for he continuation of life after death. The pharaoh served as the link between the mortal humans and the eternal, with the priests as the delegates of the Pharaoh.
- Secularism	Old Kingdom : The flair for building is reflected in the fact that no ruler would dwell in the palace of his father, and would rather construct his own dwelling place. The Egyptians excelled in shipbuilding, as the ship was the only means of transportation. Middle Kingdom: The significance of scribes to the economy increased, with the need to record all government functions (movement and activities of armies, enumeration of crops, monthly inspection of the utilization of utensils in the temples, etc). Central to the understanding of the human was the notion of the Ka (the force of life), which is perceived as a quality possessed by all men, which left the body in death to rejoin it in the afterlife. However, the king's Ka was much greater than that of the populace.
- Concentration of power political economic religious	Old Kingdom: Egypt's political organization revolved around its rulers (the pharaohs) and traditionally the chronology of Egyptian city building follows the dynasties of its rulers. The Old Kingdom (c 2778 - 2263 B.C.) was dependent on the agricultural system inherent in the annual Nile floods. Dynasty VI was the beginning of the downfall of the Egyptian state, which was only rectified during Dynasty XI when Egypt re-emerged as a significant political entity. Middle Kingdom: Recovery, expansion and material replenishment were characteristics of this period. Diverse, religious cults were reorganized and consolidated under the sun-god Ra. Second Intermediate Period: refers to the two hundred year span beginning in the late eighteenth century B.C., of the Hyksos conquest. New Kingdom: A renaissance in the arts, important military accomplishments and the consolidation of a powerful royal authority characterized this period. Commerce expanded and was further reinforced by military and imperial expansion. Booty from captured lands and the skills of captured craftsmen stimulated growth and development. Hittite pressure on the outskirts served to increase pessimism among the Egyptians. After the death of Tutankhamun (who succeeded Akhenaton) the economy began to slide into a decline. Strikes, economic upheavals and internal disorganization spread after 1150 B.C.

INFLUENCES	ANCIENT EGYPT
- The Power Hierarchy	Development follows the chronological organization of the dynasties of Egypt's rulers, in which the political arrangement was centred around the pharaohs. Snofru (in the Fourth Dynasty) was perceived as being 'a benedicent king over all the earth'. Snofru built many temples and his propensity for building revealed the fact, that no ruler wished to inhabit the palace of his father, preferring to build his own dwelling. Snofru is credited with the building of no less than three pyramids (symbolizing Egyptian accomplishment) which include the Rhomboidal pyramid at Dahour, and a step pyramid similar to that built by Imhotep. The early dynasties exhibited rulers of well-defined personality and individuality as reflected in the remnants of the city building processes. Through various crises the social organization of the all-powerful god-king finally collapsed under weak and ineffectual rulers, as evident in the decrease in size of royal burial chambers and the increase of those belonging to wealthy courtiers and landowners. Throughout the history of Egypt, the prosperity and decline of the development of city buildings processes have tended to follow the rise and fall, respectively, of the power elites, namely the pharaohs or god-kings. Thus, the chronology of Egyptian city building follows the dynasties of its rulers. Instability and the change of social order was accompanied by a reduction in the size of royal burial chambers. (Dynasty VI).
- Culture	A bas-relief from Cheops' burial chamber indicates an influence from the Helu-Nebut who are presumed to be the ancient ancestors of the Hellenes.

ELEMENTS OF THE PUBLIC REALM	ANCIENT ZIMBABWE (700-900 AD uncertainty as to exact date)
URBAN SPACE	
- Squares	
- Streets	
- Parks	
- Vacant Land	
- Meeting Place	Hilltop fortress known as the Acropolis, which served as a defensive post for protection from other raiding parties. The undefended ruin is the second sub-group consisting of a series of enclosed spaces. e.g. the Valley Ruins at Great Zimbabwe being simple enclosures on open ground, with no defensive characteristics in their siting.

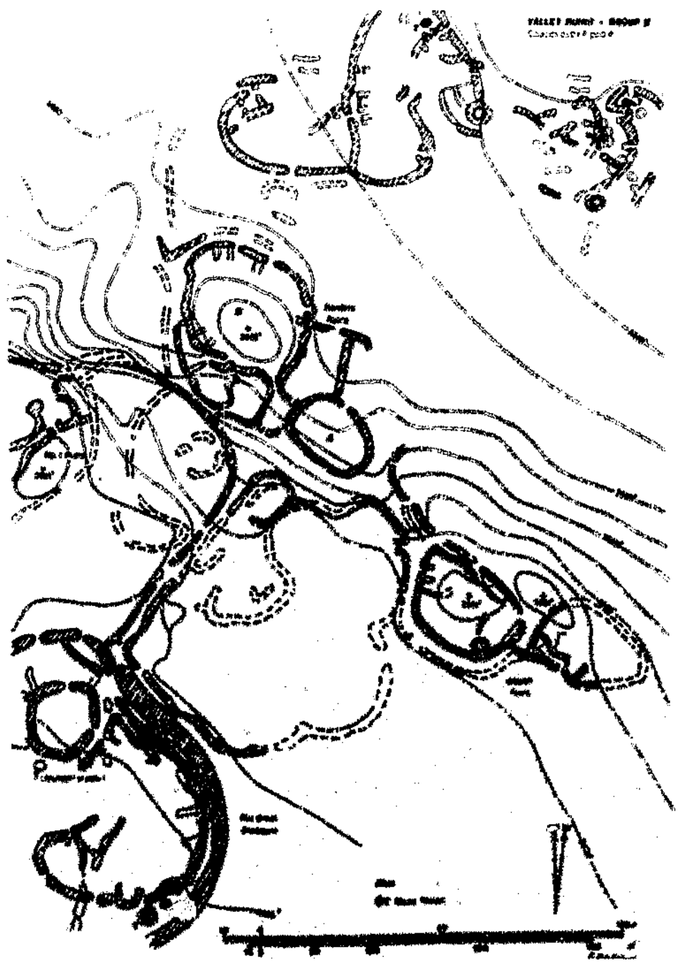


Figure L.1. : The Valley Ruins, Group B.
Source : Mallows, W. (1984) The Mystery of the Great Zimbabwe, p.33

The third sub group is the status platform which consists basically of stone walls, often with patterned brickwork, and used as retaining walls for flat terraces on which living huts were erected.

ELEMENTS OF THE PUBLIC REALM	ANCIENT ZIMBABWE (700-900 AD uncertainty as to exact date)

The Great Western Enclosure is about 11,000 square feet, irregular, five-sided with high walls. The main wall gives a celebration of arrival through the broad series of six conical stone turrets at twelve foot intervals with large five feet nine inches stone uprights between them.

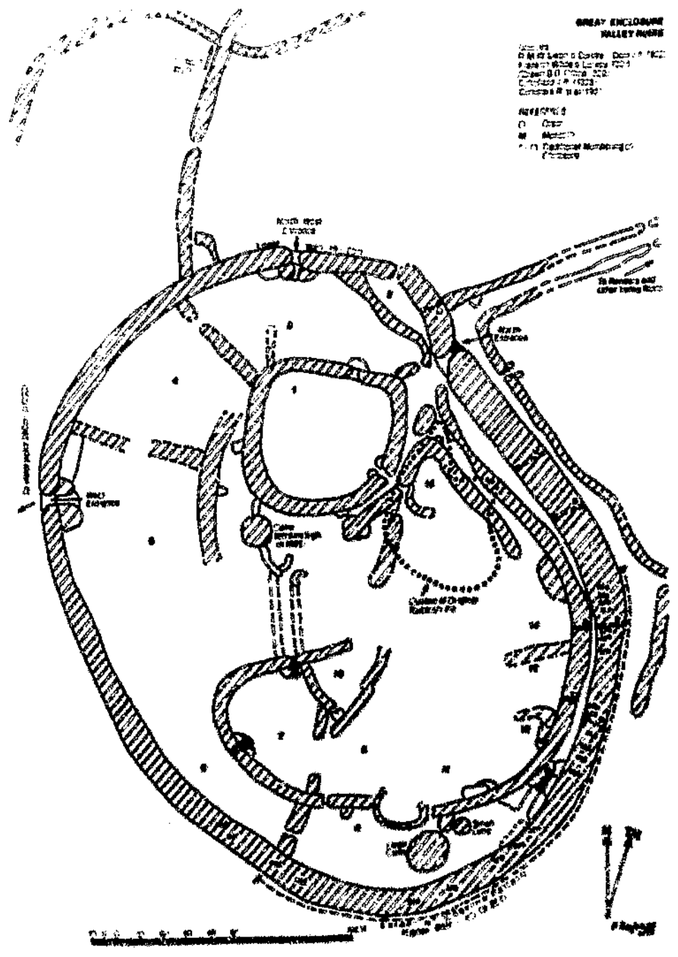


Figure L.2. : Great Enclosure, Valley Ruins.
Source : Mallows, W. Op. cit, p.35.

A Reception Area was formed on the north side of the mass of central boulders of the Western Enclosure. The Reception Area became known as the Cleft Rock Enclosure because of a tilted cleft in the rocks on the north side.

Figure L.3. : Entrance, Cleft Rock Enclosure, Hill Fortress.
Source : Mallows, W. Op. cit, p.23.

ELEMENTS OF THE PUBLIC REALM	ANCIENT ZIMBABWE (700-900 AD uncertainty as to exact date)
- INDOOR/INTERIOR SPACE	Interior space tends to be enclosed and contained through the use of stone walls, and sometimes parallel stone walls as in the Great Enclosure of the Valley Ruins.  **Figure L.4.** : Great Enclosure, air view from the east. **Source** : Mallows, W. Op. cit, p.40.
INTERFACE	Steps were evident at the bottom courses of the wall which were carried up and down to enter the building. These steps were swept round into a smooth, concave curve acting as a welcoming gesture, almost an enticement to enter.  **Figure L.5.** : Rock Passage, ancient approach. **Source** : Mallows, W. Op. cit, p.21.

ELEMENTS OF THE PUBLIC REALM	ANCIENT ZIMBABWE (700-900 AD uncertainty as to exact date)
CITY PLAN (layout)	According to Mallows (1984) Great Zimbabwe is devoid of geometrical control. All the planning forms are curving, sinuous, and infinitely flexible so as to fit any topography or function. It was a technique of direct, immediate adjustment to necessity (whether of nature or of man) where functionalism was unlimited being the very essence of grass-roots. The stone ruins exhibit non-formal, non-geometric planning techniques. The settlement patterns are a simple and direct reflection of a subsistence economy.
BUILT FORM (relative to the public realm)	
- Agricultural	Sunken pits were utilized for small stock shelters, for sheep or goats. The ruins consist of a built-up circular stone platform round a sunken pit twenty feet to 25 feet in diameter and up to eight feet deep. Entrance into the pit, through an adjacent passage was protected by a guard and a sophisticated lock of a horizontal bar in a slot.

Figure L.6. : Entrance to covered passage, western enclosure.
Source : Mallows, W. Op. cit, p.27.

The ruins south of the Limpopo River were made by simple, straightforward farming people, agriculturalists and pastoralists, attending to their herds and cultivating the lands as pictured in the Jewish and Muslim scriptures. Stonework was used in the base of the circular mud huts and in the semi-conical granaries. Low stone walls were erected to ensure that the cattle (their basic wealth) were protected. (See figure L.4.).