

CONCEPTUAL SPACE REEVALUATION OF THE TULSA CIVIC CENTER

by

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CHAPTER I

INTRODUCTION

ACROPOLIS—HISTORICAL GROWTH OF ARCHITECTURE:

In the history of the art of architecture, the belief that architecture reflects human values was always felt and realized. This resulted in the creation of architecture which was sensitive to the psychological responses of the people who were part of it. The submission of the design philosophy to the creation of meaningful forms by the designers was always at the root of the process of evolution of architectural thinking. The designers always tried to extend their work beyond the rigid architectural criteria and put their buildings in a setting which could enrich the natural environment. More so in huge and complex civic projects that the architects and designers executed their skill and showed understanding in synthesizing the socio-economic conditions with the cultural belief of the people.

The design of the civic complexes was constructed to let man walk through the long expanse of plazas and spaces, to make him search for his existence and image. The life force generated due to the activities of the people within these complexes created enriched environmental forms in their infinite variety and charm responding with meaning to all the inherent concepts for which they were raised.

The best example of this concept of fusing mans' inspiration to create beauty and integrate it into his daily life can be found at the Acropolis in Athens. The objectivity of the design of spaces in the complex of structures

and the rendering of the individual buildings here for ages characterize Greek architecture. Everything here was actually presented in stone and mortar, creating its own direct impact on the perspective faculties of the observer.

Before any analysis of the design motivation that made the architects design the Acropolis can be undertaken, it is interesting to trace the history, social conditions, and political-economical structure of ancient Greece and the people.¹ The land of the Greeks stood at the crossroads of the east and the west, the north and the south. Strong and lasting cultural influences from the older civilizations of Asia were adopted by the Greeks. The Greeks were Hellenes sons of the mythical Hellen. The native Hellenes of Greece suitably adopted themselves to the strong currents of the other civilized lands. The inherent nature of probing the innerstructure of every element of life made the Greeks good artists, craftsmen, poets, and philosophers. They mastered all visual and performing arts of the time. They developed a tendency to inquire the spirit of human action through questioning and reasoning. It is said that the Greek was always demanding answers from himself and nature. The quest for knowledge and perfection is characterized by their performance in all arts. Besides this thirst for knowledge, this continuous curiosity, which was behind the origin of so much Greek philosophy and Greek science, there was still another quality, the ability to synthesize and speculate, the ability to create beautiful patterns

¹Anderson, W. J., *Architecture of Ancient Greece*. New York: Charles Scribners Sons, 1927.

out of the knowledge which had been gained.

The Hellens seem to have had an innate aesthetic sensitivity. They were sensitive to rhythms in music and arts, in drama and architecture. The Greek tragedy and the Greek sculpture are the finest expressions of their power of perception and imagination. They insisted that this artistic, cultural standard should be generalized and be at the disposal of a common man, so their greatest works were always exposed to severe public admiration and criticism. The extraordinarily high level of even the most modest Greek pottery in shape and in painted decoration reveals how universal this love of beautiful things and the ability to produce them must have been.

W. J. Anderson in his book "Architecture of Ancient Greece,"² has said,

"The artistic feelings of the pious Greeks led them not only to express the symbolic meaning, attributes and achievements of their countless Gods in sculpture but also to surround their sacred statues with quantities of votive offerings of every description - this way the buildings dedicated to their divinities were decorated and furnished and a wide field was opened to the artist and a magnificent opportunity to the development of art."

In further explaining his concept about the growth of Greek art,

W. J. Anderson said,

"... their separation into small communities and independent comparatively peaceful development; the necessities which drove them to a seafaring life; circumstances, also such as the extreme brilliancy, the lightness and bracing properties of their atmosphere, all channeled to produce the type of Greek art."

²Anderson, loc. cit.

In the initial stages of their growth, the Greeks switched from wood construction to stone, but they preserved in stone the elements taken directly from the wooden prototypes. In a way, this may indicate a general lack of sensitiveness to the building materials where the inherent qualities were not exploited to the utmost. Yet the Greeks had a marvelous intuitive sense for the expression of structure. They believed that a structural form should express lightness, but not weakness. The designers strived to further their knowledge in arts and aesthetics. They attempted to improve the techniques of their precedents.

In his book, "Architecture through Ages",³ Talbot Hamlin has said,

"The Greeks apparently had little native tradition of decoration when they first came into the Mediterranean world. They borrowed forms from everyone with whom they came in contact with. In that sense, they were perfectly and unashamedly eclectic."

There was in Greek work not only a continuous line of progress, but also a certain standarization of constructional systems, giving rise to the "orders" of architecture. Development in arts was mainly due to the opportunities that religion provided for the artist, sculptors, and architects.

Religion to them was an expression of natural phenomena. As a rule, temples dedicated to the gods, signifying nature, had the statue looking eastward toward the rising Sun, and thus the main entrance to these temples faces east. The evolution of temple design was not very fast in the early stage, since gods were housed in residences. The increased influence

³Hamilton, Talbot, Architecture through Ages. New York: G. P. Putmans Sons, 1953.

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Plate No. I

- a. The axial and geometrical planning of the early period in ancient Greece.
- b. Gradual development of axial planning with the introduction of the movement of a man in the planning process.

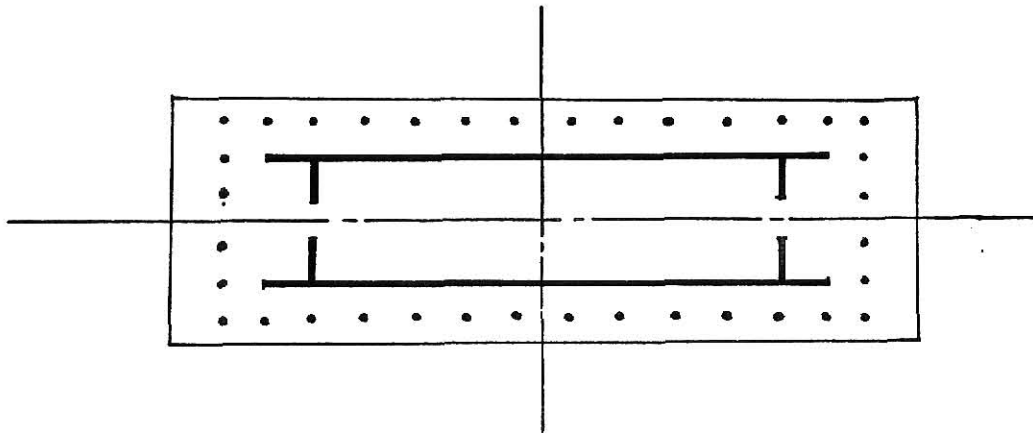
Source: a. Browne, Edith A. Greek Architecture. London: Adam and Charles Black, 1909.

b. Doxiadis, C. A. Architecture in Transition. London: Hutchinson of London, 1964.

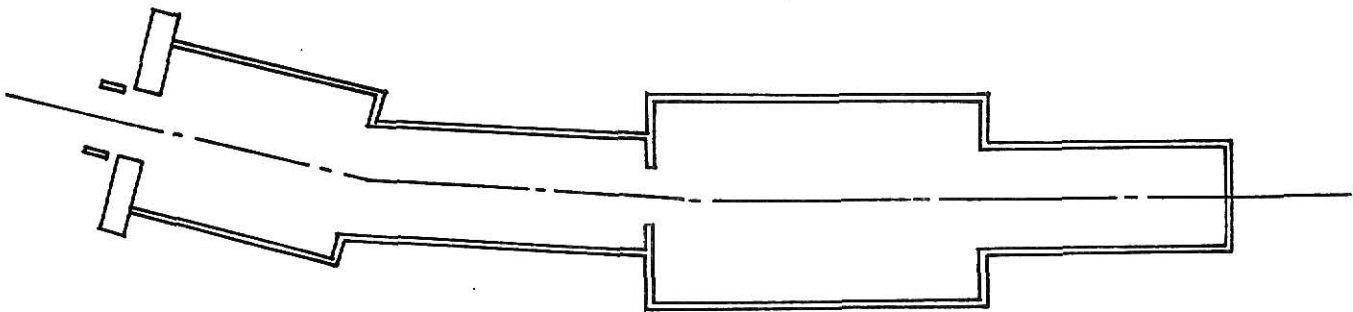
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Plate: I



TYPICAL EARLY GREEK TEMPLE
PLAN



DEVELOPMENT OF TEMPLE PLAN
EXAMPLE: TEMPLE OF AMMON, LUXOR

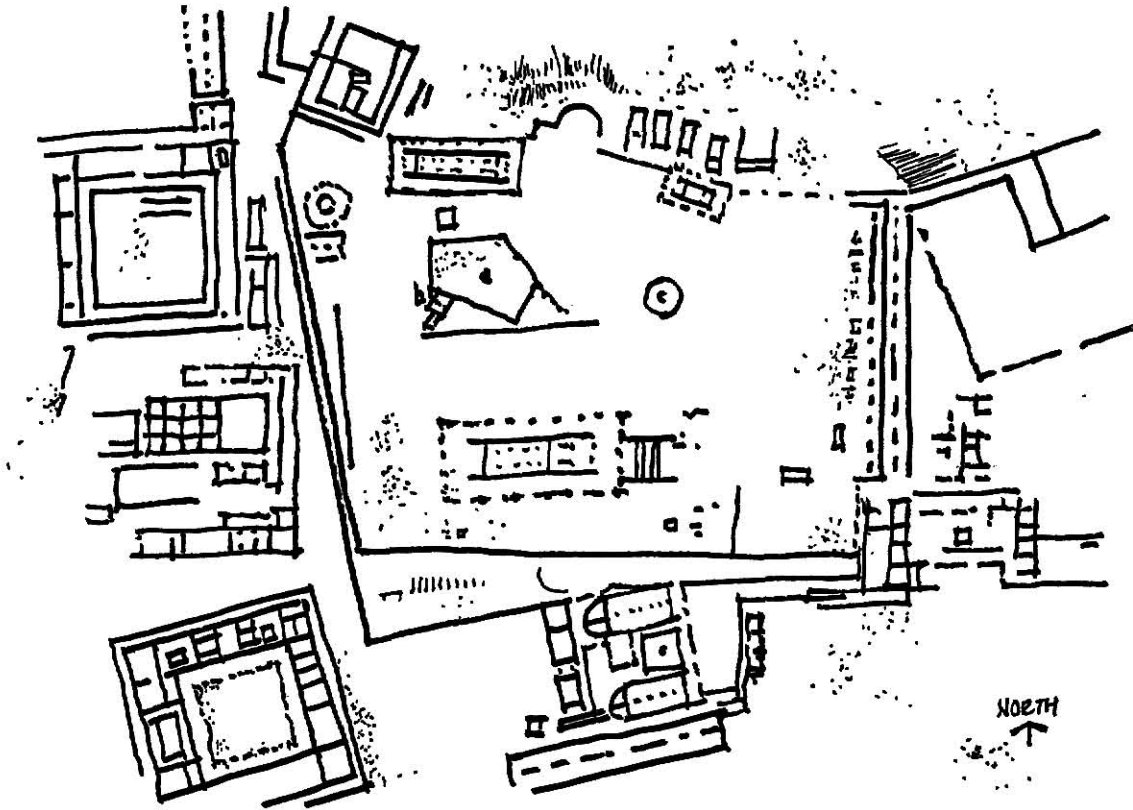
of religion and the rising power of priesthood in all activities of the cities of Greece compelled the designers to construct temples for the gods, separating them from the residential areas and adopting rectangular plans. These geometric plans facilitated construction and satisfied perspective principles. Initially, the temples were conceived as individual objects in a virgin landscape. Thus, though there was a gradual development in the technique of construction of temple structures from wood to stone, there was a distinct lack of communication between the architectural objects and the surrounding environment. Around the fifth century, since religious architecture was considered an integral part of the civic life, designers revised their concept of temple design and laid more emphasis on placing of the temple structure in a proper setting, harmonizing it with the landscape. Temple buildings were no more, now isolated objects in the space, they were incorporated in the programming of other civic buildings. This gave rise to "precinct planning."

Government and religious activities, which were considered the nucleus of a healthy civic life, were grouped and planned as a complex. Though every thought and care was executed in refining the design of individual structures, it was the consideration of overall planning that was a unique innovation of the era. Example: Precinct of Zeus at Olympia- Plate No. II. Sculptures, statues, and fountains were incorporated in the design to enhance the beauty of the whole environment. Since the whole design philosophy regarding the planning of the precinct was centered on the

Plate No. II

Plan of the precinct of Zeus at Olympia. The growth of Civic-complexes in the later period of Greek civilization was governed more by the movement-system of the people who used them, rather than the rigidity of the geometry that existed in the preceding period.

Plate: II



PLAN OF THE PRECINT OF ZEUS AT OLYMPIA

movement of a walking man, the sizes and shapes of the structures and their interrelations were brought down to the pedestrian scale.

Though the movement in fine arts gathered momentum, due to the active support of the religion, it was the strong and sound economy and a stable, progressive political setup of the state which was responsible for contributing to the general progress in the cultural life of the people. The ruling monarchs encouraged construction of public buildings. Though the seeds of democracy were sowed long before the growth of architectural style, it seems that community structures were mainly oriented to show the power of the ruling class. Cities like Athens, Corinth, Syracuse, and Agragus prospered since they were the commercial and religious hubs of the region and centers of governmental activities. Gradually, the influence of the ruling class diminished. There were no decision makers in the field of arts. Religion, on the other hand, stirred the minds of the citizens and artists alike, with the result that huge and beautiful temples of Athena, Zeus, and other gods and goddesses were constructed, to reflect peoples faith in religion. In the latter stage, besides temples most of the buildings were designed as communal spaces for meetings and assembly. The design of these spaces was at the root of "precinct planning." Architecture fused with the other arts, since everything was an important element of the environmental design. The elastic democratic structure made an individual concerned about his environment. People demanded pleasing architectural designs in which they could take pride and identify their aspiration. In

their march for progress, the economy of Greece was a major contributing factor. Since it was considered the responsibility of the concerned citizens to improve and to beautify their environment, the city officials and wealthy citizens of the city spent part of their revenues and profits in the improvement and beautification of their city.

Describing the economic situation in ancient Greece which helped to push the frontiers of visual and performing arts, William Anderson in his book, "Architecture of Ancient Greece,"⁴ has said,

"... it has been said that behind and beyond the cause that we can specify for the development in art and in civilization itself there is an economic one. That a great period in art production should arise, there must be a certain over-production in accumulation of wealth, which may be said to find an outlet in the various channels which architecture and art supply."

Another crucial and decisive factor that gave impetus to the whole creative movement in the arts was the emergence of a wide and talented band of artist, who were anxious to practice their art at the public level. The existence of wealth and affluence proved sufficient grounds for these artists to show their skill. Extraordinarily talented architects like Ictinus, Mnesicles, and Callicrates rose to the occasion and designed buildings like the Parthenon, Erechtheum, Propylaea, and other structures of exceptional beauty and style which conveyed the true meaning of Greek architecture to other lands. In their struggle to create enchanting physical environment, these architects were ably assisted by sculptors like Phidias and Mende. It is clear that this association of artist and architects in the design of

⁴Anderson, loc. cit.

communal spaces was responsible to a great extent in bringing about unity in art and architecture.

The creation of the Acropolis at Athens was the culmination of all essential features of the Greek styles and was considered by the Greek populace as the climax of the architectural design process, since here architecture no more remained an isolated art, but became a vital tool of environmental design.

Space Analysis of the Complex:

The creation of the Acropolis strengthens our belief that in the field of architecture, man's potentialities were defined by the tangible limits of the city-state in the fifth century. The boundaries of his sphere lay far beyond his objective experience. The shapes of structures and size of spaces on the Acropolis were designed with extreme care, and precision.

The Acropolis buildings were placed in close conjunction with one another and not as lone structures in a natural setting. The composition of masses and spaces presented a harmonious blending of architecture and space design. Emphasis was laid on the axis of the spatial movement, so that it could be more interesting. Space, in a true sense, became an element of Greek urban design.

The human scale, dominance of gradually increasing structural boldness, the concept of spatial relationship, and movement have always been viewed as elements of design philosophy. The individual buildings were arranged corresponding to laws of perspective and the capacity of the human

eye and its angle of vision. Through the varying orientation of all structures, through the relation of the elevations toward each other and through their partial dependence on the site and environment, an apparent continuity of the overall design was originated. This created continuity of successive visual impressions which could create simultaneous awareness of volumes and feeling of space.

The composition was further marked by an even, regular disposition of elements, with sufficient degrees of subordination and dominance to provide a major point of focus on the center of the facade in the front and in the back and on a few chosen points within.

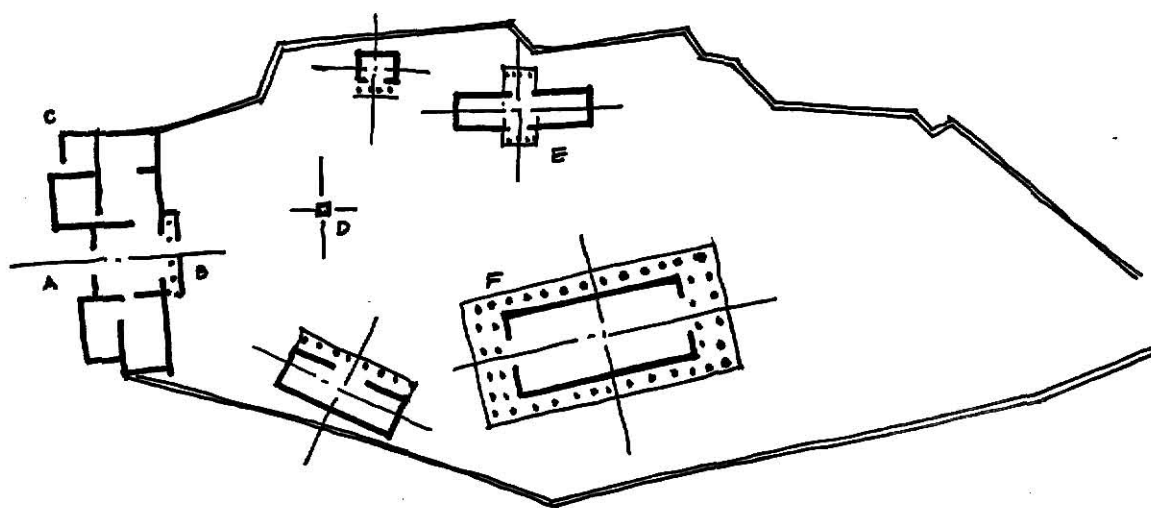
More than anything else, the proportions of a Greek temple convey the Greek idea of beauty in simplicity, of a sense of order. Centuries of experiment lay behind the height of a column in relation to the diameter of its shaft, the relationship of verticals of the columns to the horizontals of the stylobate and entablature, of solids to voids, and of the slow rise of the pediment. The greatness and eternity of the Greek architecture lies in the fact that an observer did not need to be in a particular mood to stress his imagination to appreciate the splendor of the complexes. The mathematical laws of perspective and geometry which were chiselled to extreme precision and intelligently applied to the architectural masses could stimulate any state of mind. The building seemed to be alive with movement-the rhythm of columns, play of light, and shadow across solids of the facades and structural recesses. No part dominated another in a structure, but each contributed to the whole to bring about serene, poised beauty.

Plate No. III

Plan of the Acropolis, showing the various buildings on the Plaza and their axial positions.

Source: Rodenwaldt, Gerhart, The Acropolis. New York: E. Weyhe,
794 Lexington Avenue, 1930.

Plate: III



PLAN: ACROPOLIS, ATHENS

- A. Temple of Athena Nike
- B. Propylaea
- C. Pinakotheka
- D. Statue of Athena
- E. Erechtheum
- F. Parthenon

In the complex of structures that were designed in the plaza of the Acropolis, Plate No. III, Parthenon was the first to be revealed to the stunned eyes of a visitor, emerging from the narrow columns of the Propylaea. This most influential building on the Acropolis was screened from the normal sight by the sturdy walls of the sanctuary of Athena Brauronia and it was compelling to pass through another propylon into an interior court to confront the full splendor of the west facade and the impressive north flank of the temple. The mass of the structure was forced to be seen and viewed from an angle so that it could be fully revealed in three dimensions. The sight lines were so calculated that the mass of the Temple of Athena could be absorbed in a single glance. Horizontally, the line containing the eight columns of the facade describe an angle of 45 degrees, the angle of vision with a normal stance. The impressive mass of the facade was emphasized by a wide ramp of curved monumental steps similar to the one which enlivened the temple steps and was echoed in the frieze and architrave. Propylaea, designed by Mnesicles was placed in regard to the orientation of the Parthenon which was completed with extreme sensitivity and care. The longitudinal axis of the Propylaea was almost at right angles to that of the Parthenon. A subtle relationship was thus established between the building forming a frontpiece to the Acropolis and the chief temple of the group.

Although the Parthenon was simple in plan, it was designed to be seen from a distance by people living in the city below and to be seen in bright sunlight which could enhance the surface reliefs of the facade. Fully

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developed mathematical and geometrical laws were employed to make the structure balanced, proportionate, and aesthetically pleasing; devoid of any optical illusions.

Though the architecture in the Acropolis was considered the showpiece of Greek style, it is the composition of the complex that has inspired the succeeding generation of designers. The structural beauty of the individual buildings in the Acropolis was the result of mathematics, geometry, and basic laws of perspective. The individual buildings here represented the Greeks' mastery in shaping objects. Their ability to arrive at logical and aesthetically perfect solutions made them good space designers. It should be noted that the designers not only used mathematics to design spaces, but also employed human psychology and emotions to manipulate the environment. They understood that organized spaces are as important as the structures themselves to stimulate the minds. They successfully translated the philosophy of environment design at the Acropolis, where buildings and open spaces compliment each others existence.

Here in the Acropolis, the shape of the free open space, the form of the three-dimensional void was not a byproduct of structural orientation, but an absolute form which conveyed the meaning of organization. There was complete integration of the various structures with the environment. Moreover, the buildings were freely accessible from all sides. The creation of a pleasant and enchanting environment comes not by chance but by careful planning. The peculiar beauty of the space was essentially generated from picturesque combination of individual buildings often contrasting

sharply in height, width, and surface treatment. Each structure was separated as an independent unit. They were raised to form a continuous three-dimensional frame around the plaza square, more often they receded and projected irregularly, thus creating a broken boundary of the space between them. Though in plan the buildings looked irregular in their position and relation to each other, they were conceived by the study of psychology and the movement of a walking man on the plaza. Behind the irregular and random spacing of the masses, there was complete order and unity in the process of design and space organization.

The spirit and zeal of achieving perfection in the arts is evident in the spaces designed around the structures in the Acropolis. The designers strived to achieve a finite sense in the planning of the complex of the Acropolis, since it was the nucleus of the Greek philosophy.

In his book, "Urban Design - The Architecture of Town and Cities,"⁵ Paul D. Spreiregen has written,

" The buildings of the Acropolis were once believed to exemplify the Greeks' preoccupation with limited entities. Sited on the sacred spots of the Acropolis, the component buildings were once thought to lack visible design relationships with each other. Such evaluations would have insulted the ancient Greek architect. For while the buildings of the Acropolis do not have a geometrical axial relationship, they do have a very definite visual relationship. This is evident when one approaches them from afar, from middle viewing distance, from close up. The buildings of the Acropolis were not designed according to any drafting-table geometry. They were conceived, built and rebuilt over a long period of observation and reflection - to be seen by the human eye and experienced by people moving on foot. Their design

⁵Spreiregen, Paul D., A.I.A. Urban Design-Architecture of Towns and Cities. New York: McGraw Hill Book 6, 1965.

discipline was not the abstract plan; it was the real experience of the people."

"The Acropolis group consisted of buildings which, individually and together, gave measure to surrounding space. They articulated the space of nature as a series of purposefully sculptured masses. The visual sophistication of the Parthenon's sculptured mass is only too well known - so well known that it has obscured the design sophistication of the entire Acropolis group."

There is no written record of the mathematics and architectural principles which the planners applied in designing the spaces at the Acropolis, but it seems clear from the result that the concept of a finite sense was predominant in the minds of the designers.

The architecture of the Acropolis, which consists of the various buildings and their relative positions, stimulates the grasping mind of the onlooker because they gave the optimum feeling of harmony and synthesis (Plate No. IV and IV-6). Though there was no mathematical ratio that could determine the relationship between a building and the open space around it, the designers were influenced by the idea of stimulating the mind of an onlooker by dramatically projecting a structural mass which could be easily identified with the landscape. The geometric rigidity of communal space planning was intelligently avoided here, creating exciting voids between the buildings that enhanced the rhythmic quality of the whole environment.

The designers were not keen about placing their buildings at right angles to each other to form a regular complex. They argued that this geometrical planning could destroy the very essence of the art of architecture, where every building had its own identity and character, and was strong enough to

generate tension in the space around it. Also, they felt that formal grouping of buildings would not magnify the inherent beauty of the structure and generate enough stimulation in the observer to appreciate the whole environment.

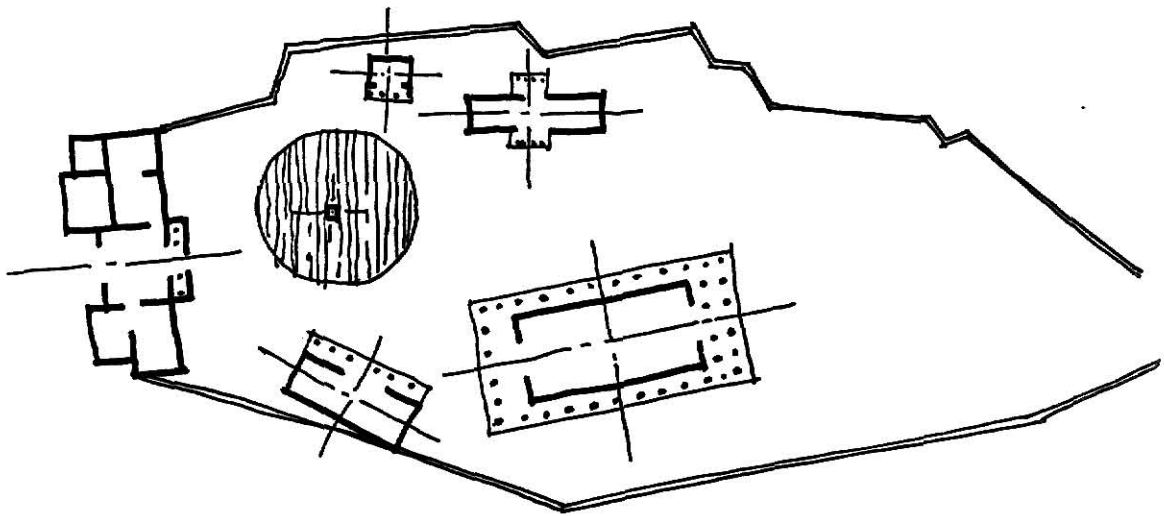
It can be said that in clarity, objectivity and idealism, in arrangement and architectural composition, in tying the buildings to their environment, the Greek designers achieved complete mastery.

Plate No. IV-a

Feeling of Space. The state of Athena (*) as a focal point in the environment with the structural framework of Erechtheum and Parthenon.

Source: Rodenwaldt, Gerhart. The Acropolis. New York: E. Weyhe, 794
Lexington Ave., 1930.

PLATE: IV-a



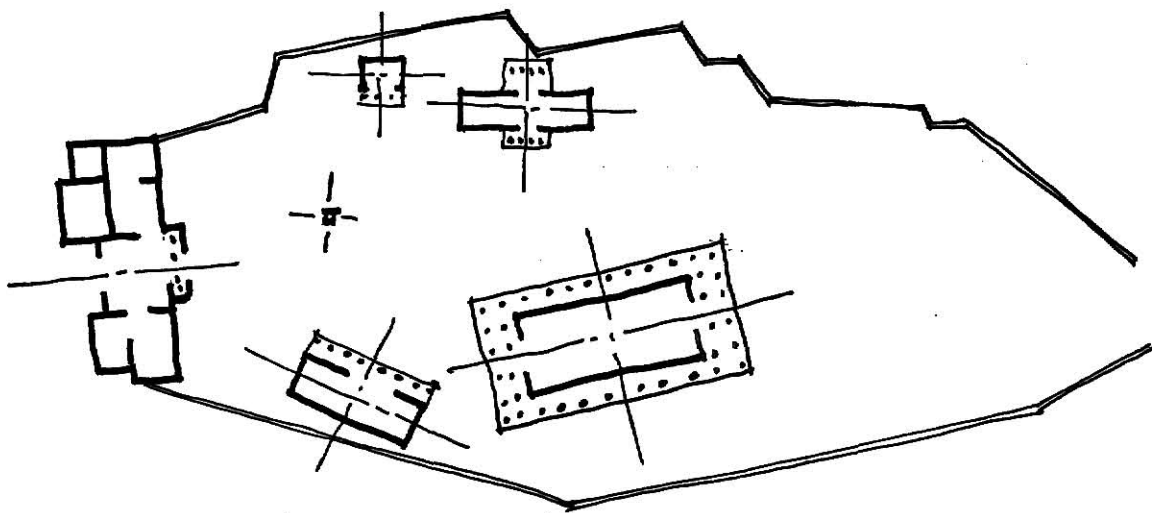
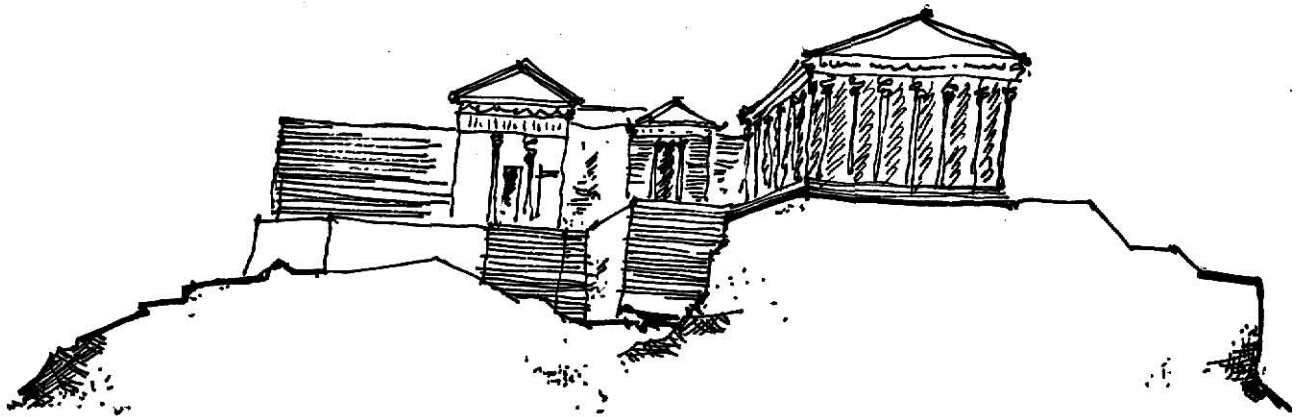
PLAN: ACROPOLIS, ATHENS

Plate No. IV-b

The interesting profile and perspective potentialities of the Erechtheum enhance the space around the statue of Athena.

Source: Rodenwaldt, Gerhart. The Acropolis. New York: E. Weyhe, 794
Lexington Ave., N. Y., 1930.

PLATE: IV-b



PLAN: ACROPOLIS, ATHENS

CHAPTER II

SQUARE DESIGN:

Historical Background

The organization of spaces to form "squares" was conceived with the belief that human activities on a large scale could be performed in structural units of varying dimensions having a common architectural frame. The sites and locations of these complexes, in all periods of architectural growth, were predetermined so as to give more meaning to the belief that these spaces were organic and in a continuous process of redefinition. The spatial pattern created by the three-dimensional forms was always subjected to change through the successive erection of buildings and the volume of human activities performed therein. The designers of these civic spaces embodied many of the principles of architecture and town planning in their creation.

The squares and public plazas in the past were intimate, approachable, and comprehensible in their design, reflecting the life style of the people for whom they were created. Their inviting nature resulted essentially due to the planners' concern for people. It is interesting to note here that in the Greek and Medieval periods, the squares were more intimate and informal. They were more appealing, due to their asymmetrical balance and their intentions to complement the topography of the site they were raised on.

A. GREEK AGORA:

The major step in the organization of enclosed spaces to form squares was taken with the formation of the Agora or market-place in ancient

Greece. The construction of these market-places was not organized as a methodical operation in the initial stage of their development, but they were built over a long span of time in which many activities of the people as a society underwent change. These market-places were considered the nucleus of all the economic and political life of the city they served, and were thus treated accordingly. It is interesting to point out that politics was not a subject of the learned few in ancient Greece, but a pastime for all. For the performance of economic, social, and political activities, buildings were grouped around an open space to form a continuous space which gave a feeling of intimacy and semi-privacy. With the passage of time, growth in population demanded a bigger volume of commercial and other spaces for activities; this resulted in the transformation of these small open spaces into huge expanse of plaza around which the periphery structures were built (Example: Agora at Delos, Greece-Plate: V).

The spatial impression that these spaces of the Agora gave depended largely on the difference of scales of the various individual units, their width and height. Within these spaces of the square, contrast in the size of the structures and their counterparts created variations in architectural scales. The whole concept of "square design" of the Agora was based on the belief that the design was a continuous process, and thus the composition of architectural elements depended on balance and scale.

The edges of these "meeting grounds" of people were so planned that though they were not formal in plan with regular geometrical patterns, the

Plate No. V

Plan of the Agora at Delos, Greece.

The interesting composition of the plan was the result of the designers study to make urban spaces interesting and human. The axial geometry of individual building was in sharp contrast to the random pattern of the complex.

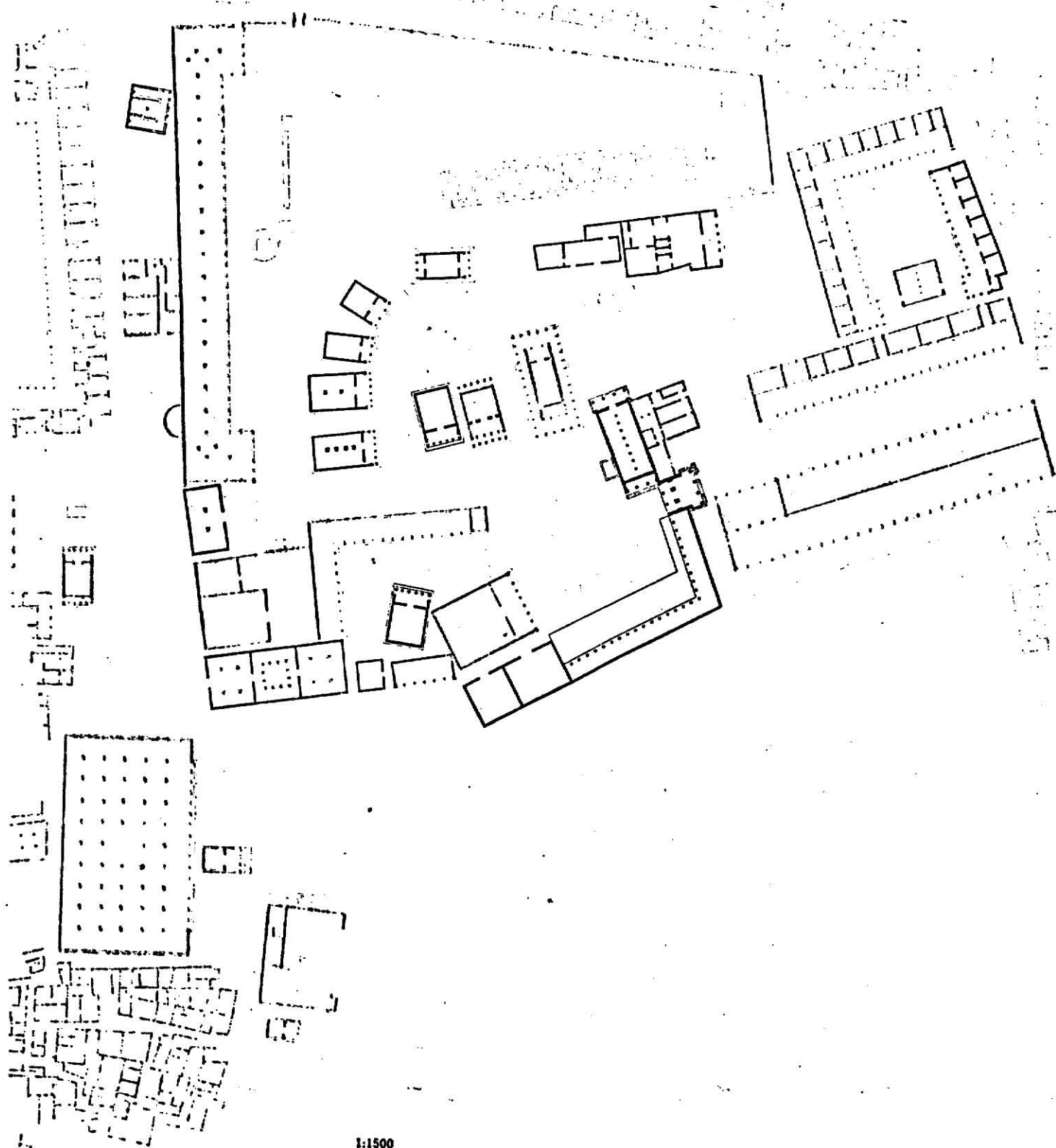
Source: Bacon, Edmond N. Design of Cities. New York: A Studio Book
The Viking Press, 1967.

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Plate: V



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aesthetic effect of the whole complex presented an image of changing spatial relations between the various buildings and the space around them. Each building that was added to the complex had its own axis, but its placing was incorporated with the other buildings at an angle in such a way that the resultant volume of elegant space bonded the new structure to the existing group. The Agora at Delos typifies this design concept of gradual growth, since construction started in the sixth century B.C. and buildings were added till the third century. The positioning of new buildings at random angles which did not result in any geometrical pattern presented the designer's freedom of expression and gave an endless variety of solutions to practice the art of square design.

B. ROMAN FORUM:

Roman civilization did not restrict itself to the Greek concept of closed squares, but developed its own style where an individual building having perfect geometrical order dominated the space surrounding it in the public square. The whole design of the square was held together by the sheer mass and size of the individual element for which it was planned.

The Romans love for politics and their organizational skill in commerce helped them to create huge expanses of urban spaces for public use. They were not satisfied by applying human scale to all architectural works, but instead developed sets of geometrical proportions which they used in architecture and urban planning.

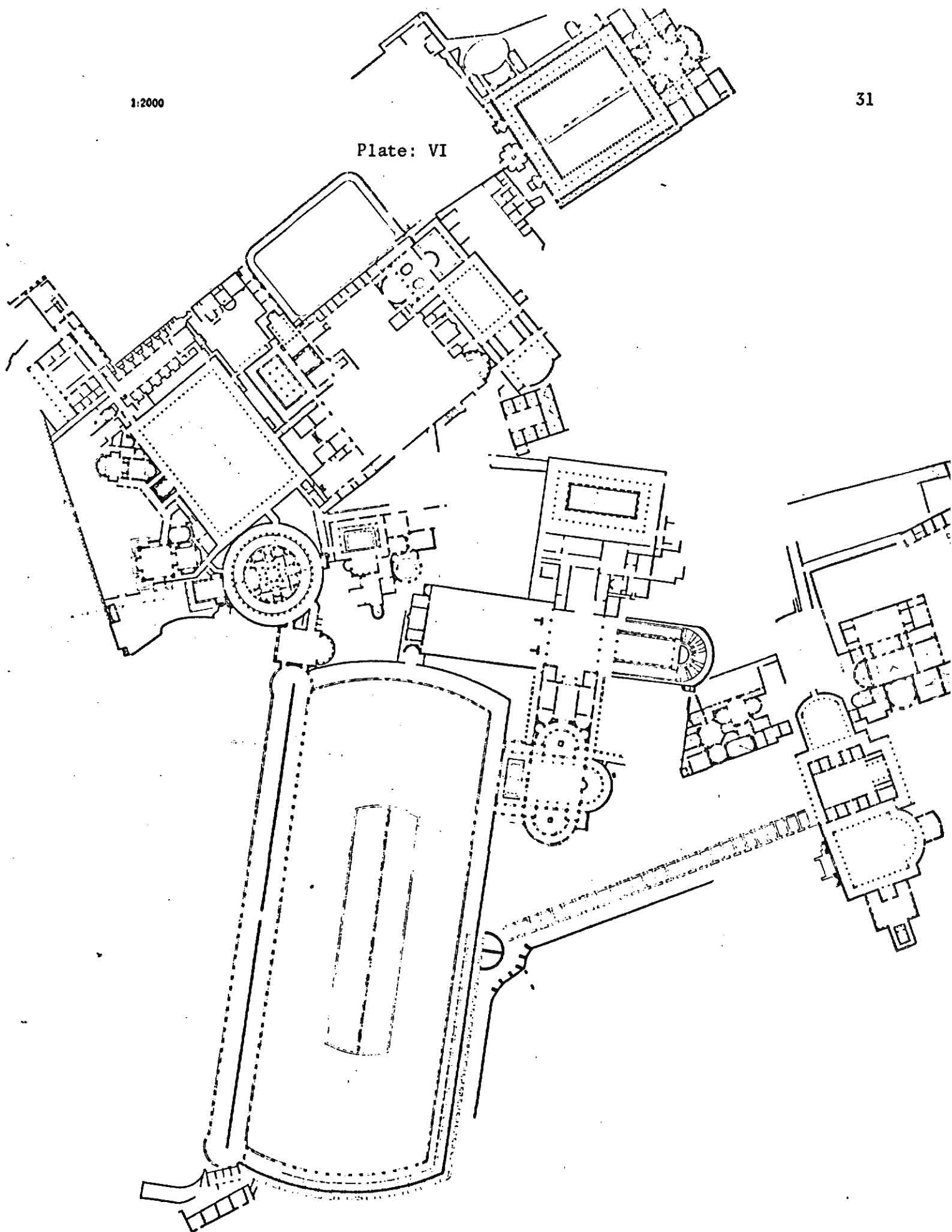
Plate No. VI

Plan of Hadrians Villa, Tivoli, Italy.

The evolution of structural pattern was based on rational thinking and geometry. The solid massed were more dominant than the open spaces in the Roman period of design.

Source: Bacon, Edmond N. Design of Cities. New York: A Studio Book
The Viking Press, 1967.

Plate: VI



The squares in Roman cities were characterized by the importance shown to a building or a group of them as the space in the square was oriented toward this mass. A commanding volume, generated by the presence of a huge architectural mass, directed the whole spatial movement in the square. Generally, the direction of the main street which opened into this square established the axis toward this dominant structure. The perspective facades of the surrounding buildings and the scale of the main building created spatial tension in the environment and compelled the people through dynamic direction of motion to concentrate at the focal point of the square. A firm and powerful spinal axis was thus established along which the column of space was directed through visual magnetism toward the governing structure.

C. MEDIEVAL SQUARES

A new design philosophy took shape in the Medieval period, wherein urban architecture was that of totality and finite in itself. It did not grow on any principle or conviction. It was primitive in concept and catered to a society which had religion as its back-bone. Though most of the public buildings were spread throughout the town, there was no visual tension which could tie them together. Unity in architectural design was lost, due to dispersion and lack of bondage. The design and construction of buildings in public spaces depended largely on the part of the designers and their sensitivity in caring about small details, since seldom a structure dominated the space as in the Roman period.

It is surprising to note that the design of the squares did not terminate with its completion, but was extended to the city limits. The narrow and crooked street pattern helped to create a feeling of thrust from closed space to open space. The dominant structure, the Church, in a square of irregular design (Example: City Square, Todi-Plate No. VII), penetrated the square and brought about structural strength and unity in a maze of overlapping building facades which characterized Medieval architecture. Though the semi-flexible, irregular enclosure of the public square afforded no grand vistas to the people, it clearly defined and identified the public life of the place. The spaces in the square were too tangible and personal to miss and avoid.

The isometric projection of small and interesting architectural details into the squares heightened the effect of visual balance between the huge architectural masses and small details. The whole idea of expressing totality through an image of the public structures was an important contribution of Medieval architecture.

Socially and politically, the mayor and the archbishop were two strong figures in the city. The mayor and the archbishop were the main clients who commissioned architects to design public works on large and urban scale. It is interesting to note that they were poles apart, in their purpose and function, but maintained a strong public image. They functioned in municipal and church buildings in the heart of the city and enjoyed a strong social influence.

It is evident from the plan at Todi Plaza that no regular geometry was

Plate No. VII

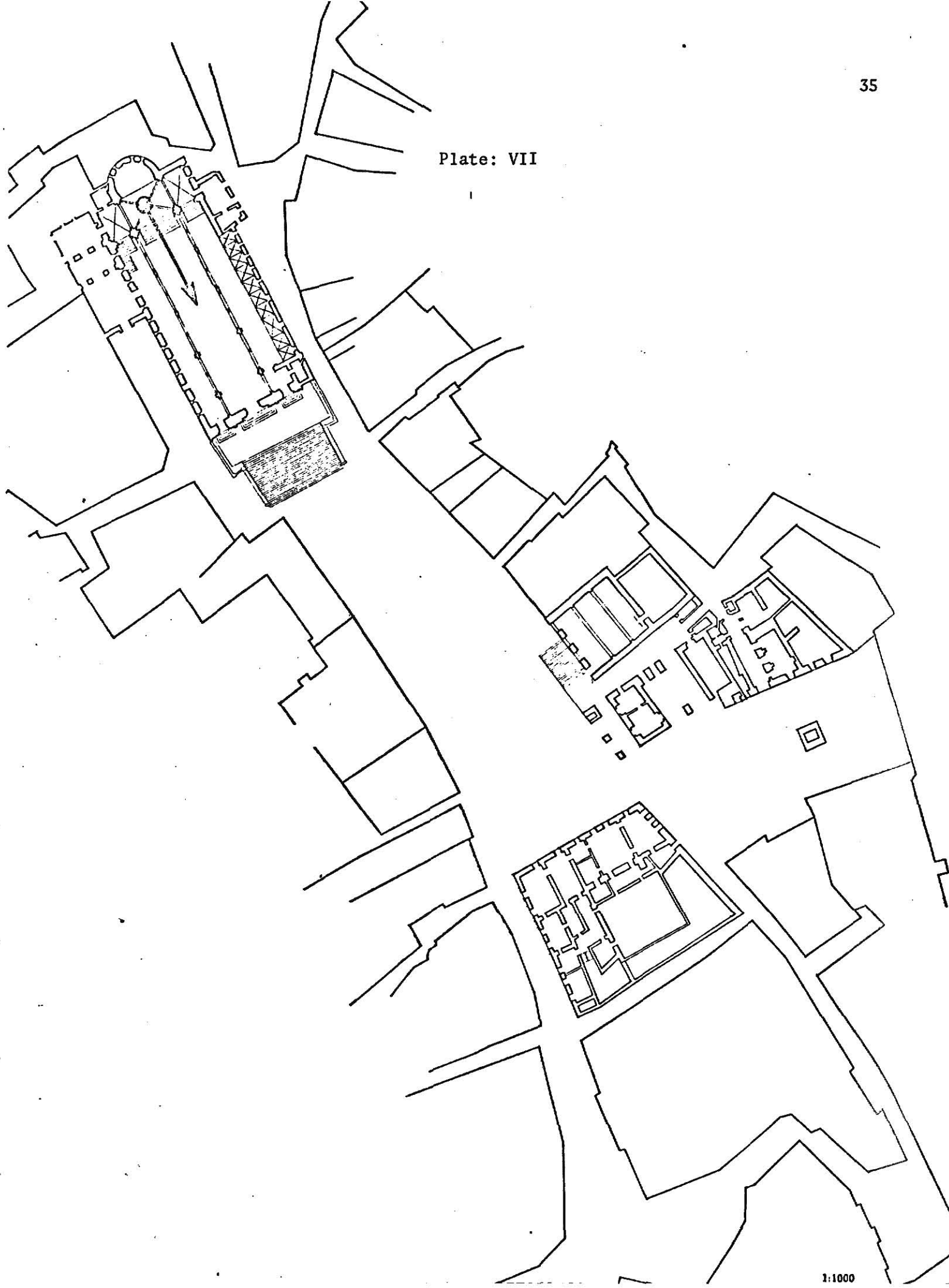
Plan and sectional view of the public square at Todi, Italy. The random growth of urban planning in Medieval times was shadowed by the designers attempt to make the spaces in the square interesting and rhythmic, with due importance to the major structures in the square.

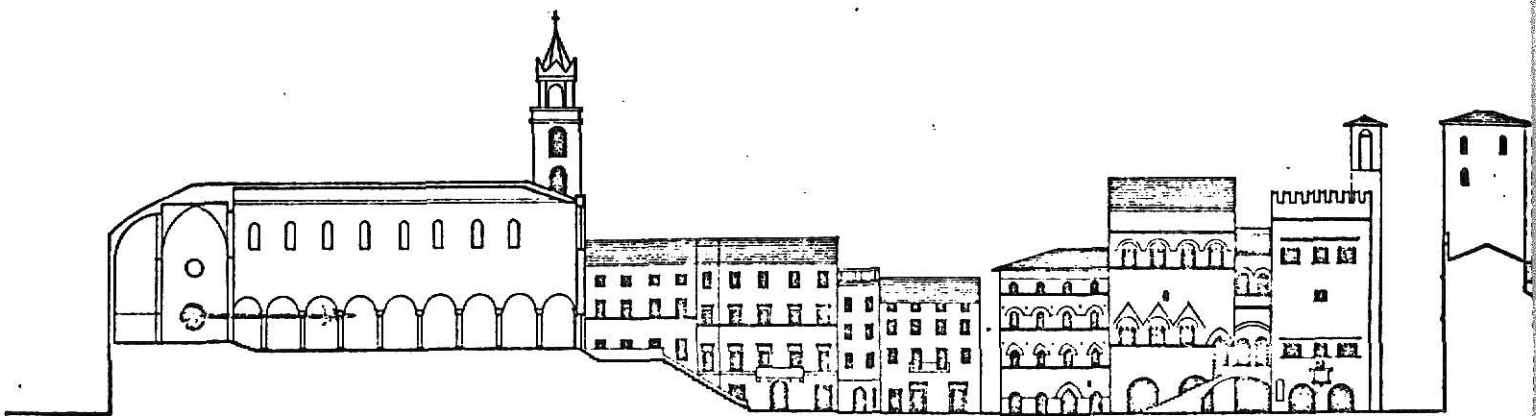
Source: Bacon, Edmond N. Design of Cities. New York: A Studio Book
The Viking Press, 1967.

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Plate: VII





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introduced in locating the buildings; the architects precisely determined in the plan and the design of the structures their entrances, their horizontal spacings, and their vertical relations. The subsequent construction of minor buildings along the edges of the square help to define the collective spaces formed around the two major structures--the Cathedral and the Tower of Palazzo del Popolo.

D. RENAISSANCE PLAZAS:

Perfect symmetry, in proportion and composition, were the key-words of the Renaissance period; in which all the present-day architectural thinking is rooted. Stimulated by the revival of the old and forgotten classical Roman arts, Renaissance designers did not restrict themselves to the work of church construction, but instead engaged themselves in a wide variety of architectural work which was grand, magnificent, and monumental.

Conceiving and planning a symmetrically composed group of buildings in perfect geometrical order was the ideal objective of most of the early period Renaissance builders. The skill, discipline, and developmental procedures which the Renaissance designers perfected resulted in the creation of public spaces that were geometrical in shape, well-organized in character, and very much impressive in appearance. Law and order in the society was reflected in the architectural design of the Renaissance and the harmony and organization in communal activities simplified the task of introducing these qualities into architecture. For the first time in the Renaissance period, the architects learned to handle huge urban volumes

and successfully molded them to form pleasing forms of everlasting beauty.

The modern-day concept of square design, formal and generalized in many respects, cannot boast of adopting any physical features of Medieval square design, mainly because of revolutionary thinking styles that followed the Renaissance. The narrowness of the crooked and ill-planned lanes has given way to wide, straight, open roads. The architectural style, the philosophy of the design development, and the execution of works underwent radical change through the passage of time, and is easily reflected in the results.

The approach and subsequently the feeling of scale and openness of the public spaces of our times is nowhere near the Medieval period. Only one thing seems to be common in both times; the emphasis on projecting the authority of governmental power through architectural design to the public and the extent of civic pride in the construction of public complexes.

The design of the square or meeting places was done with the thought that it was impossible to enter them or feel their extent without being confronted with their massiveness and composition, which was organized with great geometric precision.

The overall impression on a person who enters the square of the Renaissance times was that of order in the architectural design at all levels of growth and all stages of development. The Medieval building facades of the preceding periods did not contribute much to change the strong Renaissance style of square design.

The strong axial order of horizontal growth of individual buildings and their position on the square platform was considered an important element of this period; thus, most of the buildings were made to fit into a set pattern. Though this brought formality and monotony to the architectural design, it did help to define the edges of the squares. The Medieval informality and abstractness of the building layouts were nowhere to be found in the Renaissance period.

Sculptures were introduced for the first time in this period, to form an integral part of the design scheme to enhance the beauty and spatial quality of the square and to orient the people who used the squares. The harmonious design pattern of the building facades lend an interesting background to the sculptures that were placed on the plazas. Sometimes, a set of sculptures was used, which due to their inherent artistic strength, pulled the space around them in different directions, but tied the whole to form a pleasing environment.

The whole design philosophy in the Renaissance period revolved around the central theme of bringing order into the architectural spaces through axial growth of the various elements. The designers, it seems from their work, were very successful in establishing a forceful axial line and developing the plaza around it. The architects were more concerned in attempting to create a relationship between the buildings and the open spaces in front of them by introducing the laws of perspective, with the diminishing edge lines of the structures giving the feeling of increased volume of the frontal space.

The organization, modulation, and manipulation of the spaces in the plaza were achieved first by giving it a very geometrical shape, either that of a circle, an oval or a rectangle, and paving the same with modular patterns. Although the vertical architectural elements were impressive in their design and construction, it was the shape of the plaza that dominated the quality of the environment (Example: Palazzo de Campidoglio, Rome-Plate No. VIII). The great shaft of rigid, impressive space formed due to the paving of the plaza surface, the geometry of its design, and the treatment of the enclosing building facades did nothing but make the whole space very commanding and reinforced the quality of the architectural design. The sculptural piece that was placed at the center of the plaza was a space modulating unit which helped to orient the sense of direction. This richness, beauty, and size of the sculpture had a complementing quality that enhanced the visual impression of the main structure, which was placed on the main axis of the plaza. Besides the introduction of sculpture, fountains, and obelisks into the public squares, the innovative approach of designing them was done by putting the main building as the focal point of the whole space and making the other building complementary elements.

As in our times, the whole complex design was not carried out under the direction of one chief architect or in one phase of development, but the theme of square design remained the same at various stages. Every addition to the complex was done with the intention of reinforcing the basic design principle.

Plate No. VIII

Plan of Campidolio, Rome, Italy.

The composition of geometrical form to organize open spaces was the key feature of the Renaissance period. Modulation of structural composition and the visual force of the axial balance here made the open space commanding, ordered and very impressive.

Source: Bacon, Edmond N. Design of Cities. New York: A Studio Press, The Viking Press, 1967.

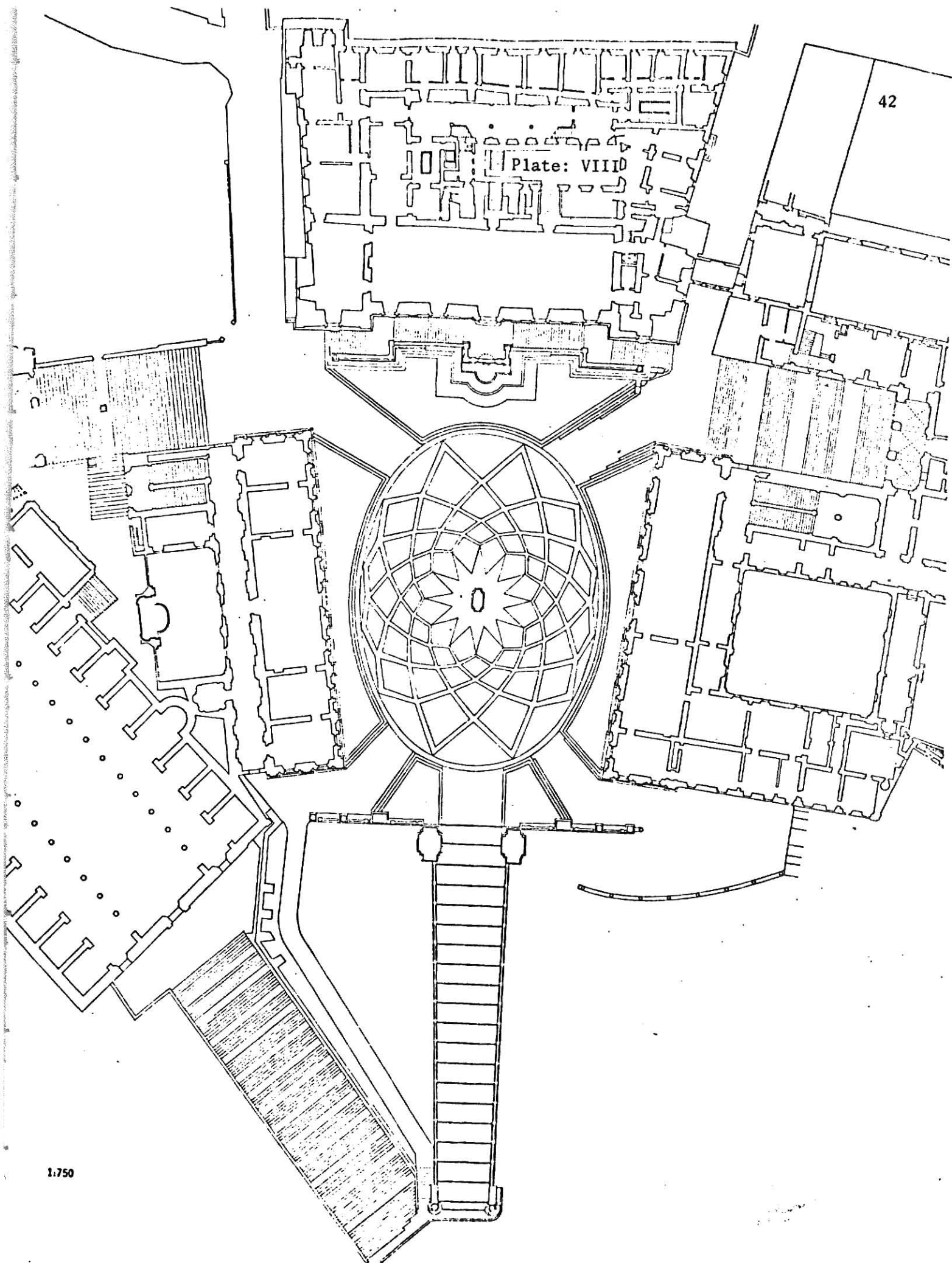


Plate: VIII

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CHAPTER III

AXIAL PLANNING AND HISTORICAL GROWTH OF CIVIC CENTERS:

The Tulsa Civic Center planning is primarily geometric, and in the framework of architectural language - "axial." The concentration of activities in the heart of the city and the special nature of the architecture to house them dates back to the earlier periods of civilization, but it is the Medieval period of history which gave it the dimension of civic space. Although in this period, the civic complexes were not laid on any axial pattern, individual structures in the complex were strictly on geometrical lines. As far as "axial theory" is concerned, there seems to be complete ignorance on the parts of Medieval designers to exploit the geometry of this growth pattern on a scale larger than individual buildings. The designers, however, had achieved mastery in relating the visual sequence of spaces on a civic scale.

It was in the Renaissance and later classical periods that development of design philosophy on an axial pattern caught the imagination of designers, and they missed no opportunity to transfer this concept into their work. The Renaissance concept of "axial growth" stemmed from their concern to emphasize "dominant space" in an organized environment. They used very ordered and balanced layouts for their public buildings and the dominant structure was placed at the center of the scheme to draw attention and control vistas. The balanced foreground in front of the main structure and the very symmetry of its impressive facade helped the whole complex to achieve the desired effect of power, authority, and organization in the environment.

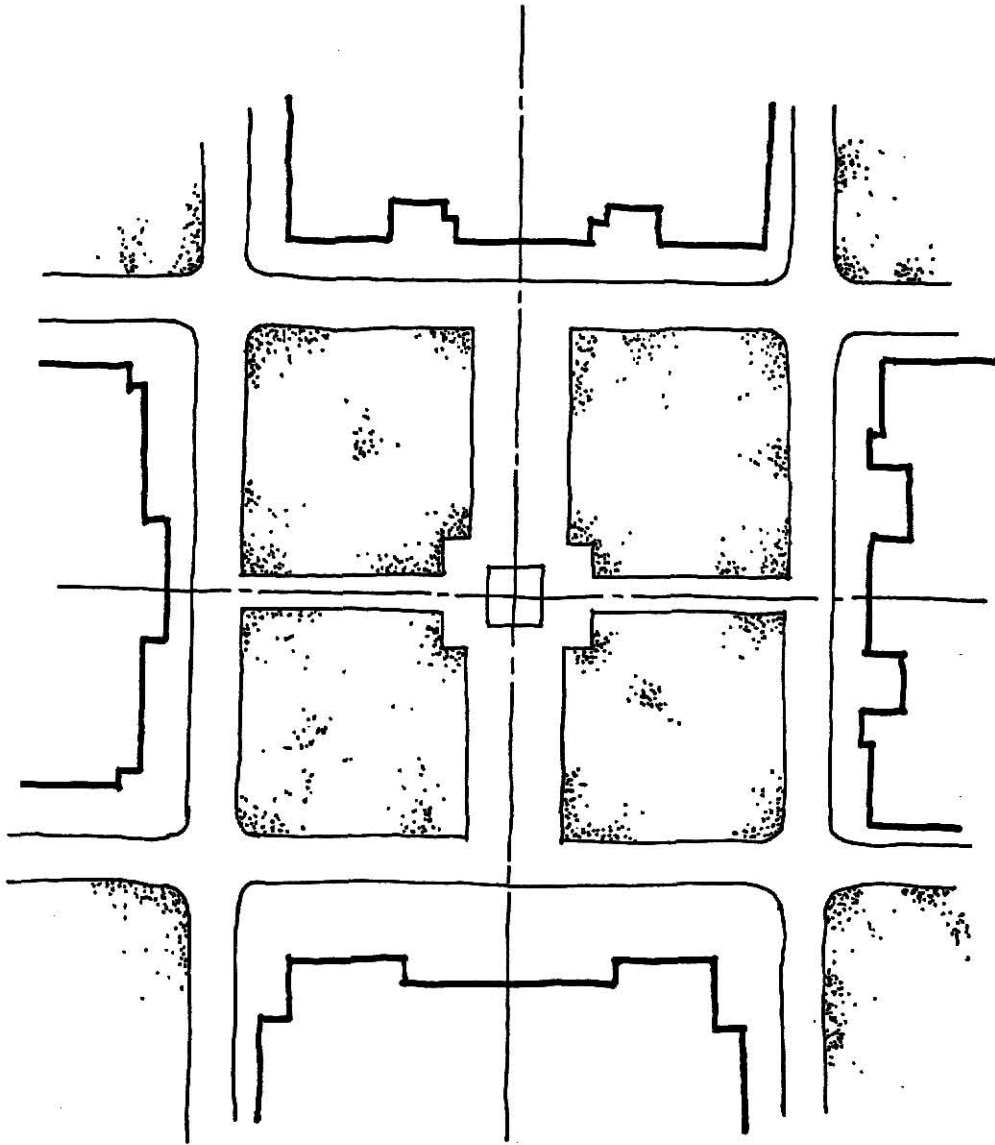
It is said, architecture reflects the social nature of a civilization. In the case of Renaissance and subsequent periods, architecture not only presented the true nature and state of the governmental structure, but also exhibited the spirit of artistic skill in public architecture.

The very orderly layout was very easy to understand and through the right-angled corners of the various buildings, the whole environment was influenced by a controlled and monumental state of architecture. Against its strong nature of directing the space flow in a rigid complex, the weakness of the axial theory, as seen in the civic centers of the classical periods, was the apparent lack of rhythmic flow in the spatial pattern around and between the various buildings. Secondly, the buildings did not have any three-dimensional sculptural quality which the Medieval layouts generated in their public complexes. The Renaissance and the subsequent designers of physical environment have tried their hand at achieving plasticity in architectural layouts without sacrificing the inherent strength of axial planning of balance and order. The nineteenth century Beaux-Arts method of axial design was based on the concept of laying the main structure on a symmetrically composed layout with the center-line of the main building coinciding with the main axis of the whole layout. This made the whole composition very commanding and impressive. Sometimes, a secondary axis was introduced to stimulate the space through the change of angles and receding perspective. The palatial layout in France at Marseilles typifies the whole philosophy of nineteenth century planning.

Plate No. IX

A hypothetical plan of a Civic Center in the early twentieth century shows the strong influence of geometry in planning.

PLATE: IX



PLAN: CIVIC CENTER

The formal, early twentieth century civic center layout on Plate No. IX is a hypothetical case study, but it clearly illustrates the sterile planning of public space. Although it can be termed successful as far as it achieved its intention of bringing order in architectural layouts, the sterile uninviting space cannot be overlooked. This civic center illustrates one important fact, the influence of "gridiron planning" in architectural design. Marcus Pollio Vitruvius, a Roman architect, was the first designer, who in the first century B. C. introduced the Roman army camp of street pattern into architectural layouts. The concept of gridiron planning was based primarily on the linear extension of two-dimensional space. It was the first bold attempt to plan cities on a modular base, where the towns were encouraged to grow in a specific direction along the axis of the main street. The structural and geometrical pattern of the city blocks had all the strength of a rectangle and it helped the city to grow uniformly and in a linear direction. The dominant street embraced the principal areas of the city and its survival was considered vital for the growth of the town.

The plan of the city of Philadelphia was conceived in 1683 (Plate No. X). It was the first bold attempt to introduce geometry on an urban scale. This "gridiron planning" that put more faith in the geometry of city growth on mathematical figures rather than considering the same as a living organism, is far from the Medieval concept of city planning. The gridiron layouts of the city blocks are extensions of the axial planning theory of the earlier periods. Today, although the scale and dimensions of the horizontal growth of the

cities have undergone changes, due to increase in population and our mode of transportation, the basic theory has remained static.

The gridiron pattern of the present-day city blocks has been a decisive factor in limiting the boundaries of most of the civic complexes of our times and added to this geometry is the very influential socio-economical state of our society. The advancing technology has disturbed the pattern of our daily life. It has forced most of our present-day household products to have rectangular and or other geometric shapes for reasons of economy and efficiency. The regular street patterns cutting each other at right angles and introduction of strong formalism in their layouts have imposed boundaries to our artistic expression and imagination.

The present architectural structures have their limitations, due to their reliance on factory-made products. Though they all have the simplicity and clean image of a machine, they lack the stimulation and romanticism of the Medieval and Classical design. Illustration on Plate No. XI shows the tight and restricted interpretation of the artistic feelings of a twentieth century architect against that of his past. The gridiron planning and our full faith in technology has changed our concept of good design. What we need today is a revival in our definition of good architectural design. It is the changing role of architecture, which has changed from static concentration to dynamic dispersion, which is at the roots of all the current thinking in urban design. If we were to investigate and analyze the characteristics of the contemporary architectural design, the extent of geometrical order of the physical space is visible due to our full and complete faith in approaching

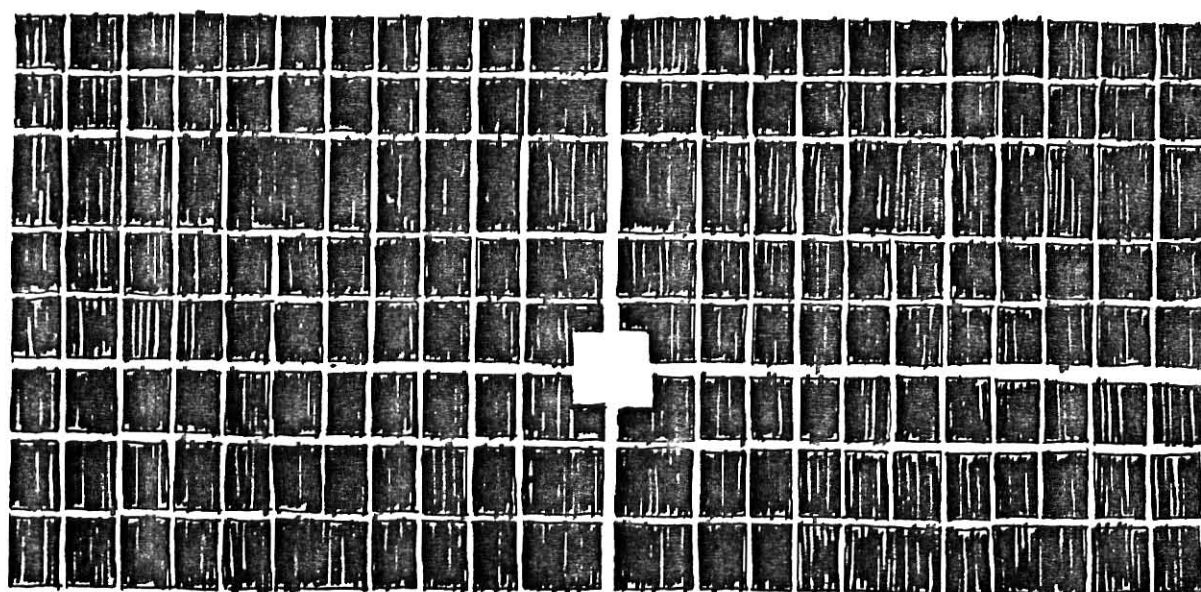
Plate No. X

Plan of Philadelphia: 1683

The earliest example of the twentieth century city planning in U.S., where street layouts determined the shape of architecture to come.

Source: Bacon, Edmond N. Design of Cities, New York: A Studio Press,
The Viking Press, 1967

PLATE: X



PLAN OF PHILADELPHIA: 1683

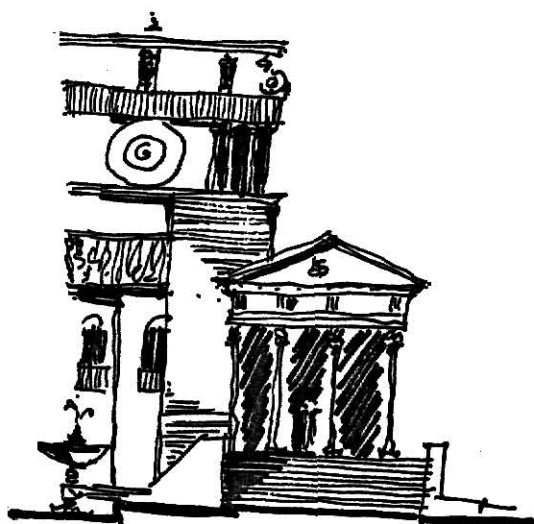
physical problems by scientific means. As a result, it seems our environment has accumulated all kinds of forms that are genuine and imitative; relevant and obscure. An obsolete design philosophy is easily accepted today.

We have accepted forms of the past and added some of our own to this vocabulary of architectural arts. The basic, geometric forms and the developed forms have not polished our aesthetic or artistic sense, since the designers today have lost the meaning of integrity and correlation in composition.

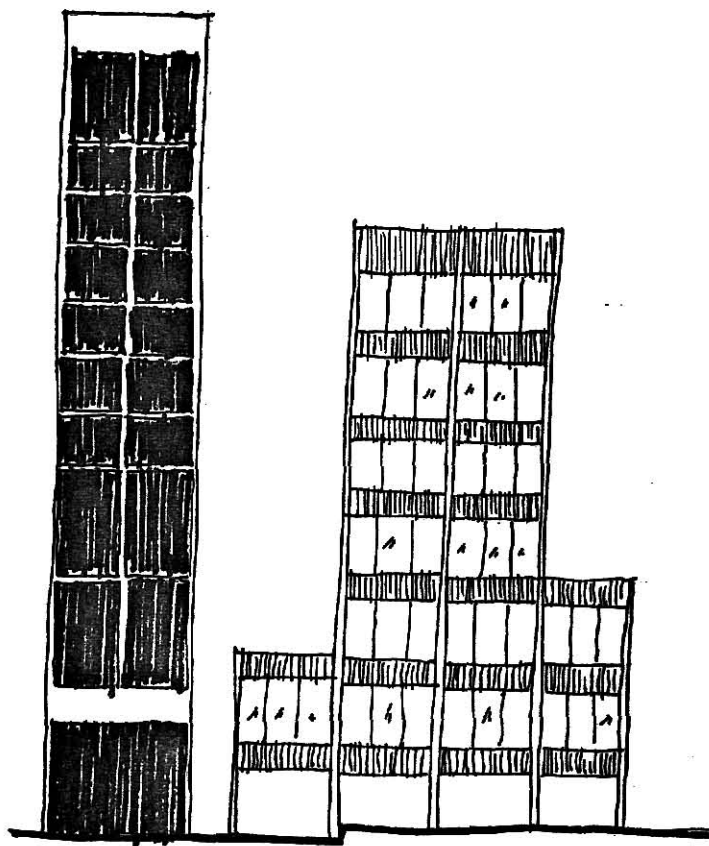
Plate No. XI

The romantic expression of art in architecture through decorative design of the Classical building facade cannot be compared with the precise, geometric modular facade of our times.

PLATE: XI



CLASSICAL FACADE



CONTEMPORARY FACADE

CHAPTER IV

TULSA CIVIC CENTER

In light of the above phenomena, one can easily follow the growth of civic centers, where planning with a strong axial order and fusion of various geometrical shapes have set expressions of technological unity with visual arts. Most of the civic centers, including the Tulsa Civic Center, have achieved a varying degree of success in their attempt to express artistic feelings of the architects through the framework of geometrical design. The comprehensive design of the Tulsa Civic Center is part organic and part geometric. The architecture here reflects the spirit of a contemporary society in physical order. The growth of the plaza is organic to the extent that it embraces all features of a good, rational axial planning. The development of the Plaza, from the organic, abstract open space in the Medieval times to the highly organized, geometric, balanced platforms of the classical periods to the present, is in itself a case study of gradual artistic growth and changing design concepts of our society. The growth of plazas has always been considered as a focal point of the war between the formal and the informal design theory. The Greeks and the Medieval designers were not misled by the conception of formal design. In a way, they were not aware of the possibility of the role of mathematics being a tool of vast architectural designs beyond corrections of optical illusions and structural stabilities of the buildings. They have buildings which are symmetrical in plan and elevation, but their composition of public buildings was never formal. They

put more stress on the rhythmic correlation of the buildings. Balance in composition was judged from a three-dimensional view rather than from the plan. The Romans, the Renaissance and the subsequent classical designers, on the other hand, were carried away by the formal design patterns of their times. Thus, they practiced extreme caution in emphasizing regularity in planning and composition. The individual buildings lost the sense of correlation and quite often had monotony in planning. They were hard to identify in a sterile, formal composition. It seems that the designers lost their power of sensitivity in understanding the meaning of informal composition.

The true nature of the civic center plaza can only be understood, if we were to consider the size, shape, and axial growth of the plaza with that of the buildings placed in it (See Plate No. XII-a). If there is correlation between the various buildings, their axial growth, and position on the plaza, the meaning of spatial feeling comes naturally. The placing of structural blocks on the plaza can be studied by grouping the "movement system" of a person in correspondence to the formal-informal grouping, the correlation of units and the architectural character of each building, to identify itself against our stimulating response to its design. The artistic expression of each building in the Tulsa Civic Center falls in the category of sterile formality of twentieth century architecture. The building forms are logical solutions to sets of program requirements. Although the volume of each structure influences the spatial quality of the Civic Center, its design and facade should not be considered as an important element of space organization.

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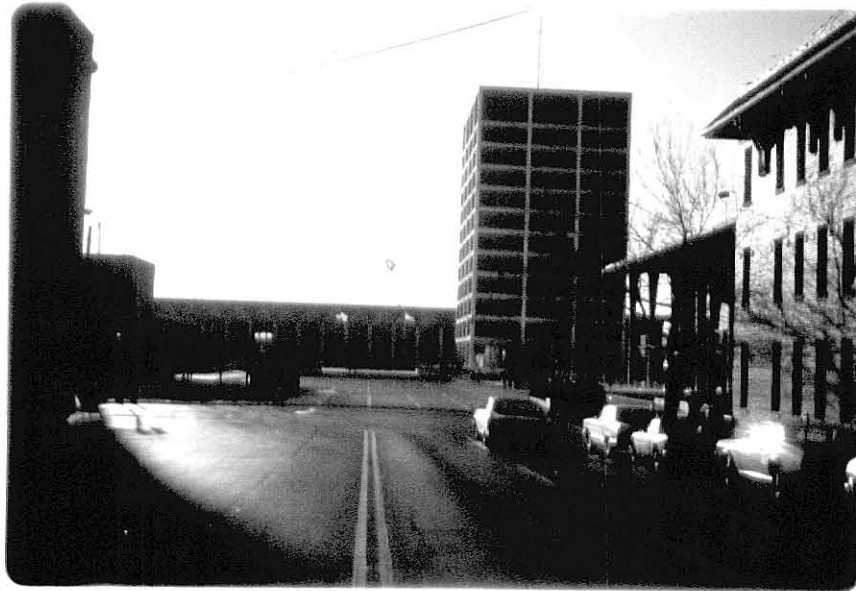
PHOTOGRAPH: ONE



Aerial view of the Tulsa Civic Center.

Note the grid iron street pattern that has proved decisive in limiting the horizontal growth of the plaza. This rigidity has helped the Civic Center to Harmonize with the surrounding urban landscape.

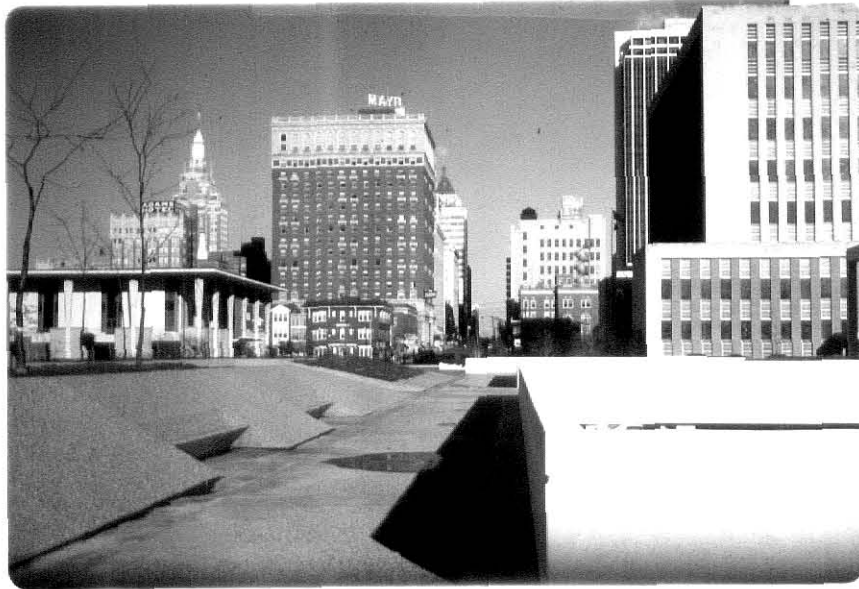
PHOTOGRAPH: TWO



View of the Tulsa Civic Center.

It is interesting to note that the median of the street here coincides with the central axis of the plaza. The strong belief of organizing public structures on a central axis to bring balance to the composition is seen here.

PHOTOGRAPH: THREE



View of the downtown structures from the Civic Center plaza. The style of their architectural design has been a deciding factor in shaping the composition of the buildings on the plaza.

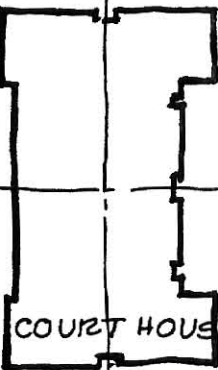
Plate No. XII-a

Form of the Plaza, predetermined by the existing gridiron street planning.

Source: Building Maintenance Department, City Hall, Tulsa, Oklahoma

PLATE: XII-a

ASSEMBLY CENTER

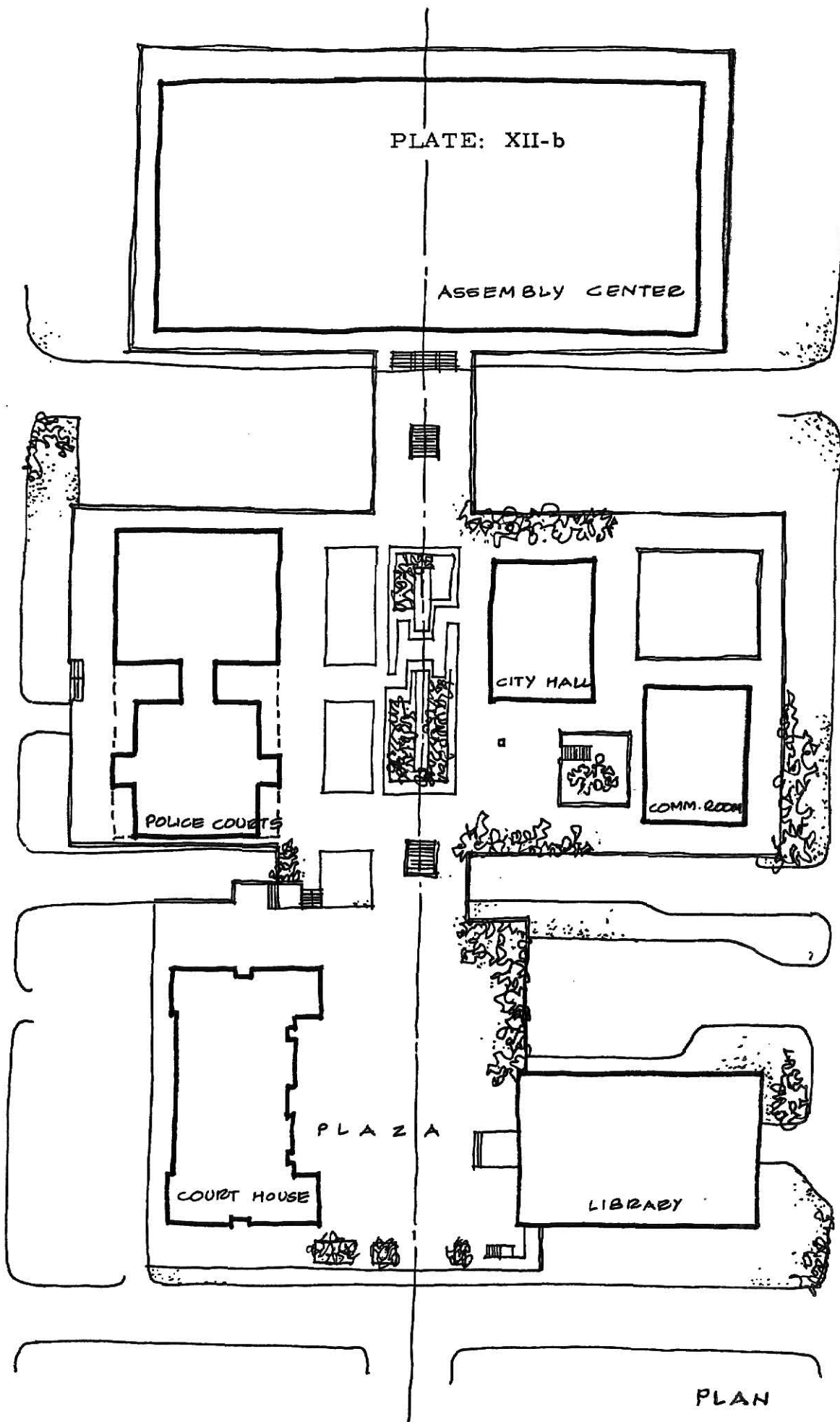


COURT HOUSE

Plate No. XII-b

The plan of the Tulsa Civic Center at the Plaza-level, with the major structures on it and the landscaping of the open spaces.

Source: Building Maintenance Department, City Hall, Tulsa, Oklahoma

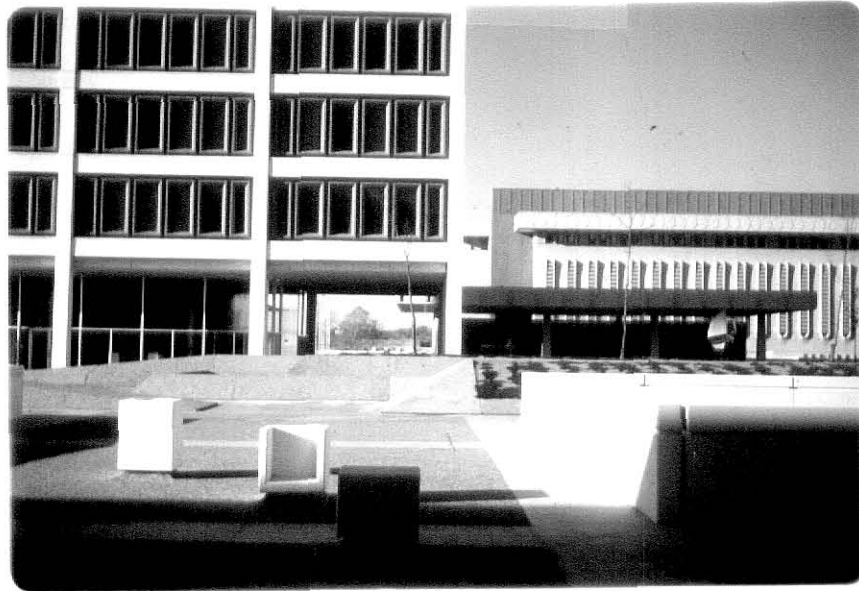


The Assembly Center, designed by Edward Durell Stone, and the Courthouse constructed before the Plaza was planned, does not help to stimulate the spatial quality of the complex. However it does fit into the gridiron layout of the streets around it. The Civic Center plaza as an enveloper of space has inherent potentialities upon which static relationships between the formal forms of the structures and the horizontal plaza can be judged (Plate No. XII-b).

Although the movement on the plaza presents a changing hierarchy of open and semi-open spaces, there is no strong contrast between them. This is a different system of space design and is different from the Medieval and Greek philosophy in architecture. The architecture in the plaza reflects contemporary thinking. It is impossible to enter the plaza at any point without being confronted with complete and organized design composition. The powerful and impressive effect of the flower beds and sculpture is largely due to the geometry of their design and sharp edges of the different structural back-drops.

The composition of the Tulsa Civic Center emphasizes one fact. When the main structure is near the center of the complex, it dominates and helps to influence the space around. Inversely, when the dominant structure is away from the center of the complex and along its edge, it allows the open space volume to dominate the environment.

PHOTOGRAPH: FOUR-A



View of the geometric facade of the City Hall and a solitary concrete seat on the plaza. The designers, although showed more care in giving sculptural shape to the elements like the flower beds, fountain and seating benches, they failed to make them functional and inviting.

PHOTOGRAPH: FOUR-B

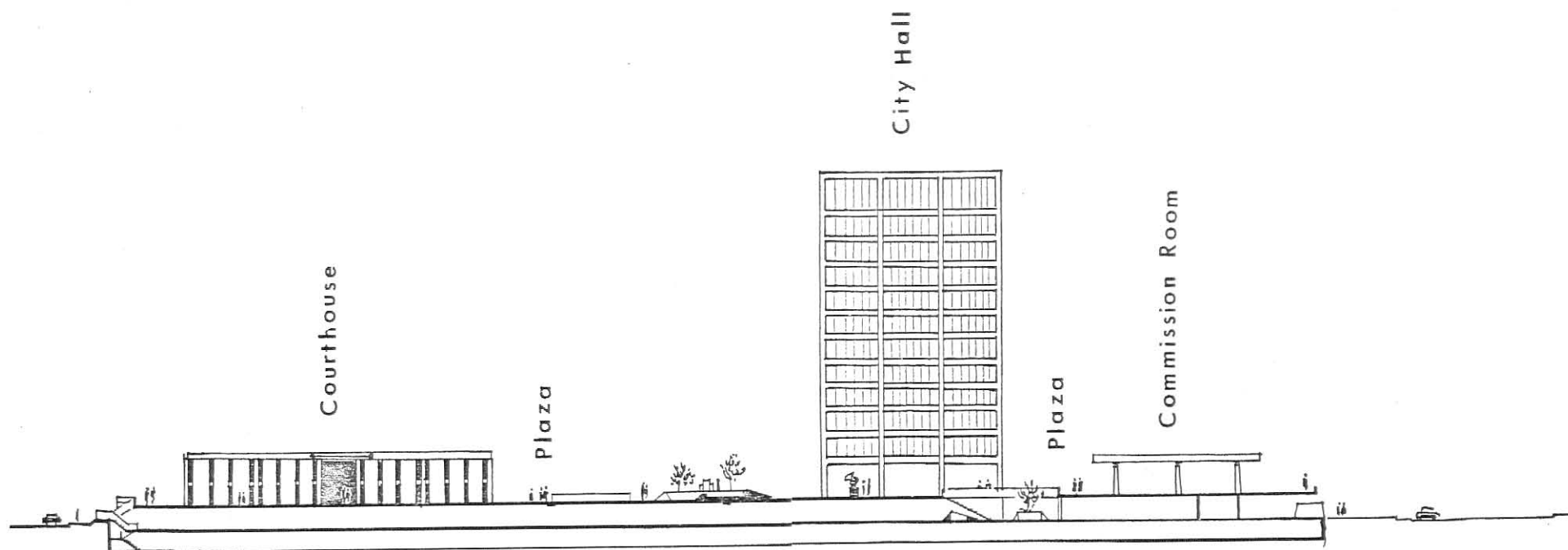


The geometric but abstract pattern of arranging the concrete seat blocks on the plaza near the City Hall is interesting from composition standpoint but weak functionally.

Plate No. XIII

The vertical relationship between the City Hall, the Courthouse, and the Commission Room is decisive and it helps to orient our sense to the architecture of the City Hall.

Source: Building Maintenance Department, City Hall, Tulsa, Oklahoma



ection: Tulsa Civic Center

CHAPTER V

SPACE:

A. THE PSYCHOLOGY OF PERCEPTION

The medium of architecture is space which is conceived through perception. The whole purpose of the psychology of perception is to make us feel aware of the existence of space that stimulates the mind due to various structural forms and various dimensions. Our attitude in facing this phenomena rests mainly with the setting we move in. The first basic ingredient of this psychology is the manner of distinguishing one mass from another.

How do we perceive "space?" Space is a visual abstraction and therefore difficult to imagine as an idea, but the nature of space can be determined by analyzing the enclosure that contributes to the creation of it and the initial step in this analysis of the physical enclosure is through "stimulation" of the mind which has to be conditioned by various factors of artistic principles like form, shape, and color. Stimulation of the mind to accommodate the feeling of space takes considerable time and understanding. Stimulation cannot be achieved in a vacuum, and the existence of an environment is a necessity. The nature of different kinds of environment like a crowded hall or an empty narrow passage triggers responses in the deeply hidden corners of the mind that one is not aware of consciously. We generally evaluate the balance of an environment from a stationary point, considering the volume of space as a two-dimensional screen. Although this static nature of evaluation gives a fairly accurate picture of the whole scene, it

does not stimulate our senses to explore further the nature of three-dimensional forms.

Form can only be conceived through the force of movement that one takes to understand the three-dimensional meaning from various positions and angles. The dynamics of conceiving forms through movement is in sharp contrast to the static nature of trying to imagine things from one position. Feeling of form and space through movement creates tension in the mind that stimulates the perception. More often, we tend to see and to interpret the nature and scale of a form by reference to the horizontal plane that represents a stable element in the environment. This is very true in the case of an isolated tall structure that is devoid of any regular reference scale features. Lack of normal elements like a flight of steps or a group of windows that contribute the important scale of a structure always makes the judgement hard and contradicting. The lone structure not only suggests a sense of location, but also activates the enveloping environment. Its influence on the surrounding space is most visible.

In the form analysis of a structure where the influence of space on a solitary form is in question, we try to impose our own meaning on the environment, since form is determined principally by the twin action of a dynamic and an ever-changing concept by which we judge a piece of art or creation. Alienation from functional needs leads to abstraction in the design of a complex and more often may lead a good design to chaos. If we assume that form follows function, it does so with more justice to function than form. At the Tulsa Civic Center, most of the forms were the direct

result of the functional needs inside. Any attempt to segregate them so that they become individual entities can lead the whole design process nowhere, since there is no distinct line where form is glorified at the expense of the functional needs. At the Toronto Civic Center, successful design was the outcome of a philosophy where form and function fused, each expressing itself without disturbing the other. Form can be beautiful and functional, simple and appealing. Rectangular blocks at the Civic Center are not the only answers to our quest for introducing beauty in an urban atmosphere.

To keep pace with time and change, our criteria for beauty, space, and aesthetic appraisal must be wide and flexible. In the process of change, we have lost our perception of beauty. Beauty can be defined as that quality of an object that stimulates the mind, that results in admiration, pleasure, and exciting experience. The search for beauty can be an endless process. Very often we come across an architectural piece which seems so perfect in purpose and beauty that we cannot think of an alternative. We perceive the basic purpose of the creation and we find it worthy. Logically speaking, beauty must necessarily appeal to our senses in order to stimulate our thought and inspire us mentally to appreciate it. We respond to a beautiful object or an environment negatively or positively, depending upon our nature of vision, angle of perception, and degree of stimulation. Right proportion of form, scale, and composition produces a work of architecture that can be termed beautiful. In the modern world, the validity of the very ingredients of beauty, like form, scale proportion, and composition, are subjected to severe criticism. Paradoxically, the few generators of forms in an

environment on an urban scale in the Medieval past have always been based on irrationality rather than any organized planning; more than anything else they expressed human feeling and aspiration and were seldom based on sound logic and architectural compositions. The belief that architectural composition has to come from some principle rather than sentiment and emotion was more apparent in the Renaissance period. In both the Medieval and the Renaissance periods, though the basic philosophy in designing public space was not the same, they achieved the unique relation between the square plaza, the enclosed structure, and the open sky which resulted in a true emotional and psychological experience. The nature of the open space stimulated the mind here to the same degree as any work of art.

Since we are concerned mainly with form and space, in an empty environment, the feeling of space can only be achieved through the awareness of "form." There is a very distinct and direct relation between mass or form and the space that envelops it. To understand fully the nature of space that envelops a form, one has to orient the mind as broadly as possible to the belief that in an architectural setting, it is not the buildings that are important, but it is the space in between and around them that is decisive and dominant. Any abstraction in design philosophy about architectural design can be accepted, if and only if we respond to the meaning of space as a basic element in the composition. The space exists in any and all design, irrespective of the nature and scale of the composition. The influence of the space on a building or a group of buildings can best be judged by the composition of

grouping. The formal and informal composition of public buildings and the resultant mass-space relationship can only be appreciated if we try to understand the purpose of the planning and the design undercurrent; of course, the trend of dividing and subdividing a total environment into departments to satisfy the discipline of planning is highly questionable. We need to respect the empty space, as much as the architectural blocks, to achieve a pleasing environment.

Frederick Gibberd in his book "Town Design"⁶ said,

" Very often great skill is needed with the design of the buildings (in the Civic Center), as their composition rests solely on the relationship of pure form in space. The forms themselves need to be fairly basic shapes with simple silhouettes, otherwise they will become confused when seen as one composition; there must be sufficient space around each of the buildings to prevent them from merging into an incoherent mass and the platform on which the building stand needs to be designed to link the vertical planes together.

The problem is altogether simpler when the view points are controlled either by grouping the buildings around a space from which they are seen as walls or by relating them by axial lines down which there are controlled vistas."

Thus, it is fairly clear that on a wide and complex scale, buildings lose their significance and sometimes are deprived of their identity if their relation with the open space around them is not designed with care.

Movement through Space:

The nature of the architectural image at a civic scale can only be achieved through the realization of the meaning of space--that has to be enclosed and that has to be extended. Design of a complex can be termed

⁶ Gibberd, Frederick, Town Design. New York: F. A. Praeger Publishers, 1967.

successful where space at all levels is treated in a manner where in open spaces enclosed by buildings and movement system through the series of spaces has achieved complete mastery over the nature of the design of individual buildings. At the Tulsa Civic Center, the visual extension of the two facades across the space by free-standing sculpture may give the feeling of two spaces. The sculpture itself acts like a bridge connecting the two spaces. Placed as a major visual event in the spatial sequence on the plaza platform, the sculpture quite often forms a turning point. The modular nature of the whole planning and the rigidity of the grouping of the buildings here leave very little to the imagination. If the design of the plaza could establish a visual direction which reflects the actual movement of people around the sculpture to form a continuous flow of harmonious space experience, the purpose of the sculpture to stimulate the space around it, should have been elevated. Also, the experience of movement is defined by the modular paving here and the wide bands are very much in evidence to enforce axial movement on or along them. Since many people today are forced to accept geometry as part of their life, they seem to take axial movement to reach the City Hall and experience the sculpture from one predetermined route. One has to feel the continuity of space in terms of a series of movements to experience it. Around the sculpture, the space is available, but it lacks stimulation.

Finally, on the Plaza itself, the City Hall, the Library, the Courthouse, and the Assembly Center provide a powerful architectural framework. Although there is heavy axial balance in the composition, there is no rigid axial symmetry. The sense of flow here does not create interest and motion.

PHOTOGRAPH: FIVE



View of the sculpture 'Amity' from the plaza floor line with the empty space and the Court structure in the background. This sculptural piece has failed to stimulate any interest or life in the environment, partly because of its position on the plaza and partly because of lack of designers concern to provide it with an interesting background. In spite of its inherent beauty, grace and scale, it does not appeal to the senses of the people who use the plaza.

The design of the space is provided in patches and they lack unity at the design stage to present interest to the pedestrian. Only that space or spaces can be termed successful in their intentions which give total and complete satisfaction to our perceiving faculty. At the Tulsa Civic Center, the architecture reflects the spirit of a contemporary, progressive society at its best, but the true ingredient of architecture--the space, lacks motion and rhythm to stimulate the mind.

CONCLUSION

We cannot overlook the fact that the visual impact of environment depends on the amount of stimulation that the surrounding spaces impart. As designers of physical spaces, architects in our time must try to understand ^{the} sequence and pattern that designers in the past adopted to make stimulation effective. The Greeks were more concerned with the defining of the individuality of man and thus expressed their architectural philosophy by relating large urban structures to the human scale, introducing rhythmic tension in the open spaces. In their struggle to bring continuous harmony in the urban landscape, they succeeded in glorifying the spatial quality of a complex. The Romans, who followed the Greeks, developed architectural design to near perfection. The authoritarian concept of their time is reflected in their works. The Romans were the first to introduce geometrical order in architectural layouts in city planning. The Medieval designers redefined the role of harmony in architectural design by unifying building masses with the landscape, but in the process lost the geometrical order of the Romans. We owe most of our present day design principles to the late Renaissance period, when geometry became an integral part of architecture.

The changing role of economics, the shifting balance of the influence from religion to politics and the great technological progress in the past century have contributed much to our concept of architecture. The advancement in technical knowledge has considerably changed our concept of mass, scale, volume and proportions. Total dependence on technology to solve our

design problem has resulted in dead and sterile environment. Architectural design, coupled with urban planning can help correct this state of the environment only if we try to understand the nature and depth of the problem for which we seek solutions. The mode of transportation has caused a dramatic twist to our concept of "movement system". Today, unlike the past, we no longer appreciate the spaces between the buildings. As designers of physical spaces, architects today must explore new avenues of design alternatives so that the liveliness and beauty of the past can be recaptured. For that we urgently need the elements which sharpen the essential meaning of the environment. The element of space has a new meaning to us, but we need to define the order that architectural thinking must adopt to understand and utilize the element of space in a manner so that the richness, beauty and harmony of the past no longer remain history.

People today seem to have lost the urge to make use of the urban open spaces. This fact is very evident in the Tulsa Civic Center. The irrational design of the open spaces and their uninviting appearance has contributed much to make people apathetic toward these spaces, that once in the historical past were the pride of the city. In the quest for making the spatial quality of the urban architecture more meaningful, we need to give new direction to our aesthetic criteria, whereby the articulation of building masses not only enhances their own identity through their scale and position in space, but also gives a new meaning to the art of space design.

Never in the past has a society been as directionless as ours. We have destroyed the relationship between material progress and the natural elements of a spiritual life. Our means are unrelated to our ends.

At the time of his greatest material power, man is without direction.

Le Corbusier

Paris, 1943

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CONCEPTUAL SPACE REEVALUATION OF THE TULSA CIVIC CENTER

by

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All along the long corridors of history, man has raised structures to match his aspirations. In the field of architecture and physical design, from its evolution, the thinking pattern of designers has changed considerably, but the basic philosophy regarding space surprisingly remained fluid, reflecting the fact that the design process is the gradual sequence of progression of dynamic and static spaces.

One function of architecture always has been to intensify the drama of living. The concept of space, throughout history, never lost its basic essence to heighten the physical dimensions of architecture and played a pivotal role in shaping our environment. The author has tried to establish through this research the fact that the definition and application of space as an environmental design ingredient never once was overshadowed by other demands of architecture. The creative urge of the designers to create pleasing environs is evident in all phases of architectural growth. The striking intricacy of the Greek life in ancient Greece, projecting the ideals of an affluent and rational civilization, is visible in their architecture. Their creations have been derived from the expression of a dominant will. Based on the sound principles of geometry and perspective, the Greek designers developed an interesting system of space design and applied it successfully at the Acropolis in Athens. They established the fact that the character of any shape is revealed by a precise relationship of its height to its width, of the disposition in space of the critical points of change in its contour. They propagated the belief that perspective potentialities and relative proportions of objects are the decisive visual factors in space design. They compose the

basic theme of aesthetics by showing us through their work that design of architectural complexes is the logical arrangement of masses and voids in space.

Architecture, today, is considered as an organization of spaces, well defined by the meaning of evolving forms whose spatial arrangement may follow varied functions. The design of the complex of the Tulsa Civic Center reflects this philosophy very well. The size and volume of the various buildings in the Civic Center resulted from the demands of rigid and noncompromising functions, but a mutual relationship does exist here between the various buildings and the spaces that envelop them individually and collectively. The feeling of space can be achieved by stimulating our senses and identifying the mass of structure or structures as a vital link of the environmental order. Though the two complexes--the Acropolis of Athens and the Civic Center of Tulsa--are considered the end product of the process of architectural design and form focal points of an urban society they serve, they confirm the presence of one essential element of architectural design--to create spaces through stimulation. In this paper, the author has evaluated the architectural space organization of the Tulsa Civic Center and established the belief that the psychology of perception has remained unaltered throughout the history of architecture and is very decisive in the success of the art of space design.