Thinking Architecture

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Abstract

Architecture is part of the history of existential meanings and thoughts. Essentially, the purpose of architecture is to make meanings manifest as a concrete system of places, paths and domains. But according to man's flexibility, capability, and ability to abstract and generalize, architects' and artists' styles were capable of concretizing significant differences in functions and contents rather than being an answer to mere practical problems. Each new style came to be a degeneration of the former style. This essay will discuss the forces and the reasons behind transmitting new styles to mankind throughout history.

Keywords: *existential meaning, private and public existential space, symbolic order, geometrization, anthropomorphization, dualist form, and phenomenization.*

Egyptian Architecture

Architecture ought to be understood in terms of meaningful forms as it is part of the history of existential meanings and thoughts. The buildings of ancient Egypt are the most impressive architecture in history for their megalithic masses, simple shapes and strict geometric organization, which prevailed for almost 4000 years. The most prominent are the Great pyramids in Giza, Egypt. Each pyramid is a balanced form with a manifestation of vertical and horizontal forces in strict order. Egyptian architecture followed a process of abstraction which is considered the first integrated architectural symbolic system in the history of mankind. It does not symbolize a dynamic occupation with the surroundings. The general intention did not, however, prevent a considerable variety in articulation and detailing.

The great pyramids were placed to form a long row of artificial mountains parallel to the Nile River. Even in Thebes, the temples formed along the range of mountains and in the mountain itself. Thus, the planning and architecture were employed to complete and articulate the natural structure of Egypt. The reason for that was to give the Egyptian his sense of existential identity and security. This also holds true for the layout of towns.

Tombs and temples are considered as houses of eternity. The temples are oriented due east and their tall doors carry the symbol of the sun-god representing the Pharaoh. The Pharaoh was a symbol of the absolute and permanent character of the man-nature totality. The plan of the temples can be seen as a representation of the path of life since the spaces, as one goes along the temple, becomes gradually smaller. The floor rises and the ceiling drops down to give the impression of an eternal return to the origin, and the

temple itself looks like an oasis with an open court, a durable megalithic mass with a powerful axis of movement. Plant motifs were also used to give an aspect of life, eternal life. Articulating details are not allowed to give the effect of smooth surfaces, but as if excavated within large masses of stone.

In the design of Egyptian temples, the masses are more important than the spaces, and the masses serve to define spatial relationships. Series of pylons or gates give emphasis to the movement of the Egyptian wondering. The obelisks were erected during the middle kingdom and then became a standard symbol of the vertical dimension, and when ramps were used they represented an upward movement.

Greek Architecture

The architecture of ancient Greece is associated with temples which generally appear as organized individual bodies with irregular distributions, and are perceived as large sculptures. Buildings are individual units representing archetypal human characters which participate in the situation symbolized by the site. Different topological groupings are established according to situations and determined by the surrounding landscape and at the center there is an enclosed space, the agora, which served as the communal meeting place.

Greek temples look alike. They are not simple masses, but articulate structures with external colonnade. The feature common to all temples is a longitudinal cella which housed the statue of god. The Greek temples are built in a different style according to their dedication. They used columns in different orders. Vitruvius of the 1st century maintains that orders represent human characters. The Doric column furnishes the proportion of a man's body, its strength and beauty. The Ionic is characterized by feminine slenderness, and its volute capital resembles, graceful cutting hair. The Corinthian, finally imitates the slight figure of a maiden, and admits of more graceful effects in ornaments.

Doric columns rest heavily on the ground without a base. The capital is simple and consists of a compressed cushion, plus a square slab upon which rests the horizontal smooth architrave. Over the architrave is the frieze. The entablature is completed by a horizontal cornice, and by a triangular gable at the end elevations. The pediment may be interpreted as a synthesis of the horizontal and vertical directions like the pyramid, and was a distinguished feature of sacred architecture.

The Greeks did not only want to define individual spaces but also recognized that different functions demand a different kind of spaces although the Greek language does not have a single word for space. The Greek temple and the dwelling moved in opposite directions. The temple became a manifestation of a well-defined character, whereas the house developed towards functional differentiation. Topological clusters are fundamental

in sacred architecture as they conserve the individuality of each element. Domestic architecture combines topological and orthogonal properties to allow for functional freedom within the regular orthogonal system of the city.

Roman Architecture

Roman architecture came to be considered a degeneration of classical Greek architecture. Roman architecture is organized on a strict axial basis generally related to a center. The Roman axis differs from the symbolism of the Egyptian path. Roman architecture is known by extensive and varied use of space, as well as active exterior space. There are grand interior spaces and complex groups of spaces with varieties of forms, and are covered by vaults and domes.

The Roman house with its atrium is considered a manifestation of the Roman concept of space. It is a centralized space, lit from above, and penetrated by a longitudinal axis which runs from the entrance to the peristyle garden at the opposite end. In certain respects the atrium house has an affinity to the Greek courtyard house.

The Roman use of the orders differs fundamentally from the Greek. The Romans wished to create a symbolic form of a new kind, and did not imitate Greek architecture. Rather than making a particular character manifest, the classical members here form a complex dynamic totality of interacting parts.

Roman architecture is systematic, but, at the same time, it is functional. They have a rich variety of spatial forms. In Roman architecture the basic notions of center, path and domain are unified to form a hierarchical system. Roman space offered maximum security without confining man physically and psychologically to one particular space.

Although the Romans took over the orders of classical Greek Architecture, there intention was not primarily to symbolize a multitude of ideal archetypes. The new concept of system rather implies that the parts are conditioned by a general comprehensive image.

Christian Architecture

Whereas Greek and Roman settlements had a more complex appearance, the Christian town was characterized by its churches. In spite of an extremely historical development, the basic themes of ecclesiastical architecture can be traced back to the Early Christian epoch where the concept of center and path were taken as fundamental and of essential characteristic importance.

Central and longitudinal spaces were the most significant manifestations of Roman architecture. These were taken over by Early Christian architecture. The church was based on the longitudinal basilica, whereas a centralized space was used when the

building task was a baptistery, mausoleum or martyrium. Centralizing tendencies can be seen in the early churches, and in sixth-century Byzantine architecture. The interpretation of the exterior was as a shell around a richly articulate interior.

During the fourth century the congregation was living together in a monastery consisting of cells, refectory, church, and secondary functions such as a kitchen and guest house. Monasticism was introduced in the West during the second half of the fourth century. In the church of Nativity in Bethlehem an octagon was added near the Grotto of the Nativity c. 330. Somewhat later a large rotunda, the Anastasias, was erected over the Tomb of Christ.

Justinian church architecture fell back upon a simple cross-domed plan, where a dome surmounts the crossing of nave and transept. In larger structures, such as the church of the Holy Apostles in Constantinople (536 -50), five domed units were arranged to form a Greek cross. In later Byzantine architecture the cross-domed church developed into the standard cross–in–square church where the corners are surmounted by smaller domes.

Space in the interior of the Early Christian Church was intended to make the visitor forget the properties of everyday things; plastic form, weight, size scale, material texture, and shape defining shadows.

The iconographic scheme of the Byzantine Church shows that the building was intended as an image of the cosmos. The dome represents heaven while the lower parts form an earthy zone. The higher a picture is placed in the architectural frame work the more sacred it is held to be. Divine light emanated from the heavenly dome and spread to the centralized space below.

Romanesque Architecture

The Romanesque style was capable of concretizing significant differences in function and content. The conspicuous property of Romanesque architecture is their combination of massive enclosure and manifest verticality. The tower is of primary importance for the first time in architectural history. Round, square, and octagonal towers were used to reinforce the city walls. The basic properties of pre-Romanesque and Romanesque churches appeared when the towered facades were combined with the longitudinal facades.

Early Christian Basilica contained arcades in the interior as well as in the exterior. This process was to culminate in the skeletal structures of Gothic architecture. With the introduction of groin vaulting in the Romanesque churches, a double–bay system was developed. The result bears some resemblance to the baldachin system of Byzantine architecture, and marked a step towards a true dematerialization of the wall.

The bay system transformed the structure into a skeleton, and was naturally accompanied by a progressive articulation of the intermediary wall surface. In churches with a Basilica section, a third story was introduced between the main arcade and the clerestory, called the triforium. This new feature relates to the corbel table and arcade motifs of the exterior, and also serves to emphasize the horizontal rhythm of the building.

Within this process three general aspects can be distinguished: 1) introduction of vertical elements; 2) spatial rhythmic articulation and integration, and 3) a new relationship between inside and outside.   The vertical elements served the double purpose of protection and aspiration, as the tower is simultaneously a stronghold and an axis mundi. Rhythmic articulation served to relate the longitudinal axis more directly to man's movements, whereby it could be experienced as a real path rather than an abstract symbol. In both cases the intention was to integrate the existential meanings of Christianity into everyday life. This is also reflected in the third aspect; the symbolic opening up of the building. What had been a refuge started to become an active environmental force. As a work of art the Romanesque church unifies contradicting factors. Dematerialization and solidity are simultaneously expressed. To achieve this end, Early Christian optical dematerialization was replaced by a differentiated structure consisting of primary and secondary parts.

Gothic Architecture

The Gothic Cathedral represents an existential image rather than being an answer to mere practical problems. Basically it was the concretization of a heavenly image, and through an open structure the image was transmitted to the entire community. At the same time transparency offered a new interpretation to Christian light symbolism. In the cathedrals coloured glass transformed natural light into a mysterious medium which seemed to prove the immediate presence of God.

The Gothic church is based on the fundamental themes of longitudinal and centralized spaces that were also permeated by a general verticality with enclosure, density, intimacy, and functional differentiation. The basic function of the cathedral was to illustrate and explain the meaningful organization of the medieval world. To achieve this end, architecture, sculpture, and painting were unified in a grouped art work which remains one of the greatest achievements in the history of mankind.

The plan of the Gothic Cathedral is based on the organization of the major churches of Romanesque architecture. Some have double aisles; there is usually a transept, and the chancel with ambulatory and radiating chapels is common. A ribbed-vault made a full geometric integration of the different elements of the plan possible, at the same time it unifies the different spatial themes of Early Christian and Romanesque ecclesiastical architecture in complete synthesis.

Gothic Cathedral exteriors lost any trace of massive enclosure as a result of the desire to transmit the spiritualized space of the interior to the entire population. The meaning of the cathedral was no longer enclosed, but had become part of the daily environment. The exterior of the cathedral is determined from within. Its original construction did not foresee flying buttresses, but with the growing understanding of structural problems during the following decades, a logical system of external buttressing was developed to take care of the concentrated stresses of the Gothic vault and wall. Diagonal ribs also implied new spatial directions. Gothic space is divided by diagonal ribs. The spatial units hence lost their relative independence, and a general integration is the result. Vertical shafts supporting the ribs are placed diagonally to the other members, and cannot be understood as parts of the wall, but belong to tall baldachins which are surrounded by a continuous luminous boundary. The hall churches bring this intention to its ultimate conclusion, as the whole structure becomes one large baldachin within a dematerialized skin. The clerestory windows become larger, the gallery disappears and finally the triforium is united to the clerestory to form one luminous zone above the arcade.

The spiritualized space imagined by Early Christian architecture had finally become an immediate concrete presence. The semidarkness of the Romanesque church gave way to the Gothic vision of light. The Gothic cathedral transmits the symbolic order which results from the interaction of light and matter to the whole community.

For instance, Brunelleschi's buildings are the manifestation of a fundamental break with the medieval architecture as is marked in his design of the Sacrecia Vecchia of S. Lorenzo in Florence (1420-29). Three properties of fundamental importance can be singled out: 1) an international reintroduction of anthropomorphic, classical members, such as Corinthian pilasters, Ionic colonnettes and a fully developed architrave; 2) the exclusive use of elementary geometrical relationships; and 3) a strong emphasis on spatial centralization. It also ought to be pointed out that the primary members are made of dark pertra serena and form a figure drawn on a neutral ground, to obtain an immediate intelligibility. Symmetry unifies the elements to form a self-sufficient whole.

Eighty years forward in time, a building which marks the culmination of Renaissance architecture, Bramante's Tempietto in S. Pietro in Mon Torino in Rome (1502), still has the same fundamental properties. The Tempietto appears as a plastic body. Although, these two buildings do reveal a rebirth of important classical properties, in both examples the spiritualized space of the Middle Ages had given way to a conception of space as a concrete container. This too represents a return to a classical Roman concept.

Renaissance Architecture

Renaissance space shows a new wish for homogeneous, geometrical order, concertizing a general belief in harmony and perfection as absolute values. In antiquity, proportions

were related to the human body, and the Renaissance artists thus found a key to a harmony which is intrinsic to all creation.

Renaissance articulation had two basic aims: geometrization and anthropomorphization. The first aim was satisfied by an exclusive use of elementary geometrical forms and simple mathematical ratios, the second by a reintroduction of the classical orders and the use of classical pilasters as interior wall articulation. In about 1450, Alberti superimposed classical orders on the rusticated façade of the Palazzo Rucellai in Florence, thereby initiating a new phase in Renaissance wall articulation. In general, the introduction of the anthropomorphic orders opened up a whole range of expressive possibilities which formed a point of departure for the Mannerist architecture of the following century.

With its idealistic forms, the existential image of the Renaissance was platonic as well as Christian; whereas, during the Gothic age God was envisaged as close to man. Only a small step was needed to change the image of the human God into the image of the divine human being, and in the Renaissance divine perfection no longer consisted in the transcendence of nature, but was found in nature itself.

Natural beauty is understood as an expression of divine truth, and human creativity was given an importance which approached the creative power of God himself. The self-assurance implicit in the new interpretation of the relationship between man and God actually brought about an enormous liberation of human creativity. Man experienced himself great and that became the theme of Renaissance iconography. The adaptation of the triumphal arch for the façade of the church (by Alberti) is significant in this connection. In general, this does not signify a paganization of Christianity, but a Christianization of pagan antiquity.

The introduction of the classical orders in architecture has to be seen against this background. As anthropomorphic symbols they no longer represented a natural world which had to be negated by man, but became means to endow buildings with divine beauty. Alberti actually distinguished between two types of aesthetic quality in a building; beauty and ornament. Beauty consists in the harmony of all the parts and is the result of proportion and connection; in other words, of the geometrization discussed above.

Ornament is something added and means an improvement to beauty. Wall articulation, such as rustication and classical detail, belonged to the category of ornament. Alberti himself said that the column is the principal ornament in all architecture, but he did not use the classical orders for the characterization of different building tasks. Bramante, however, brought back to life the Vitruvian concept of characters, and chose the Doric order for his Tempietto which was erected on the spot where the heroic martyr St. Peter is supposed to have been crucified. In so doing he initiated the deliberate Christianization of

the iconography of the classical gods. Renaissance architecture thereby received a new psychological dimension which was to come a main preoccupation to the architects of the fifteenth century.

The architecture of the following century, although the same classical language was used, existential meanings concretized by the works of art were different. Michel Angelo introduced an atmosphere of doubt, conflict and tragedy. It seems that man had become conscious of his existential problem. And in fact, the basic phenomenon of the sixteen century is the disintegration of the world order. The static, symbolic space of Renaissance architecture thus, has been transformed into dynamic occupation of the environment. A series of garden spaces were to join the building. Articulation became a means to express a multitude of interacting and conflicting characters. The reintroduction of the classical orders made this possible by illustrating the problematic relationship between man and nature. The psychological dimension discovered in classical Greece was thus revived, as was the recognition of natural forces and individual places.

The art of the sixteenth century asks for another kind of human participation. Art becomes an object of emotional experience and is used to express man's situation in the universe, rather than an ideal image. During the sixteenth century the concept of static perfection was replaced by the idea of fantastic and mysterious world consisting of a variety of places. The idea of a garden as a wonderful, fantastic place, perhaps even magical and enchanted, led to the breaking down of walls and fences and to the transformation of the garden to a group of different places, each designed in relation to human feelings.

Exterior space was made expressive and dynamic. The space between buildings became the most important element of the urban totality. In spite of this the exterior articulation is still a pure example of Renaissance visualization of proportional stereo-metry.

Mannerist Architecture

Towards the end of the 15th century the tensions and conflicts of Mannerist articulation made way for deliberate attempts at formal integration and powerful simplification. This is evident in the church fronts, where the idea of an increase in plastic intensity towards the middle of the façade is introduced to express the new importance of the longitudinal axis which was to have a profound influence on architectural development in large parts of Europe.

Mannerist architecture is based upon the Renaissance conception of homogeneous space, but in certain sense contradicts it. Whereas the fourth century stressed the aspect of isotropic, static order, the fifteenth century developed the possibility of differentiated, dynamic spatial succession. Qualitatively different interacting places and domains were defined within the general extension of space. Space was in other words, conceived as a

means of direct expression and became an object of emotional experience. The basic constituent fact of Mannerist architecture is actually the phenomenization of abstract, symbolic space. Space thus regained its concrete, phenomenal character and was understood in terms of individual places. In a certain sense, this meant a rebirth of the Greek approach to reality, but the experiences of the Middle Ages and the Renaissance were not forgotten in the fifteenth century, and the concept of place was combined with the idea of environmental continuum.

Mannerist conception of space was concretized in certain recurring ways. In relation to landscape and settlement, it produced an opening up of the enclosed stronghold, which so far had represented the basic image of the human habitat. The city wall was replaced by a system of bastions which, although they did not bring the surrounding and physical closer, implied a more active spatial relationship between the civic and natural domains. In Sixtus' fifth plan for Rome, areas were used to relate the urban nodes and to transform the city into a dynamic system.

During the first half of the sixteenth century designs expressed contrast and tension; being, however, characterized as cold and sinister, Mannerist spaces had an unendurable atmosphere. Sometimes the forms are shown in a state of disintegration or as unfinished. This disturbed form was, in general, used to arrive at a more intense expression.

The conflict and tragedy of Mannerist architecture is always expressed by means of the classical orders. The dualistic form was a result of the introduction of anthropomorphic members. The problem of geometrization was solved by the Quattrocento architects, but the problem of anthropomorphization was attended to by God.

During the first six decades of Cinquecento there was thought to be a profound split between body and soul. Divine man was replaced by a man who doubts and fears and who is split internally by the problem of choice. The belief in freedom of choice implicit in Renaissance humanism naturally led to this situation. Erasmus and Luther expressed doubt in the purpose of freedom and the dignity of man.

Baroque Architecture

The purpose of Baroque architecture was to symbolize the strict organization of the system and as a singular synthesis of dynamism. The two contradictory aspects of the Baroque phenomenon, systematization and dynamism, form a meaningful totality and are of central importance though accessible to the illiterate.

Baroque architecture is complex and rich and possess a grand comprehensive design as is understood as a synthesis of opposites; space and mass; movement and rest, enclosure and extension; proximity and distance; power and gentleness; dignity and delicacy; illusion and reality, as if to predict a new and deeper understanding of the human psyche.

Bernini made the Baroque St. Peter's Square one of the greatest urban spaces ever conceived. The main oval space is simultaneously closed and open. Instead of being a static finished form, the square interacts with the world beyond, an intention also expressed by the colonnade. The obelisk has an important function as the mode where all the directions meet and connected with the longitudinal axis which leads to the church where the movement finds its final motivation in the vertical axis of the heavenly dome.

Guarino Guarino (1624) composed complex plans with interdependent cells and produced energetic forms that resemble pulsating organisms and which give the Baroque ideas of extension and movement a new dynamic and vital interpretation.

The most important property of Baroque exterior wall articulation is the abolition of the conflict motifs of Mannerist architecture. The most important development was the undulating wall which was later applied to the open spatial groups of Guarinesque architecture, where it appears as a continuous enveloping skin. Architects of this time were sensitive to the effects of texture, colour and light, as well as water and other natural elements.

Baroque architecture concludes a period in the history of architecture of the Western culture which is called the age of humanism. Descartes said that Baroque architecture is characterized by active participation of the anthropomorphic members in a dynamic spatial system. Participation however, implied that man became more conscious of his own existence, and in the long run what should have made the system secure, therefore, led to its disintegration.

Modern Architecture

After the Baroque system had lost its impetus and also as a reaction to the industrial revolution in the nineteenth century which caused the decline of the old world, an arbitrary use of architectural forms borrowed from the styles of the past pervaded. Three symptoms characterized the new situation: 1) the loss of identity of the old integrated settlements; 2) the creation of numerous new building tasks; and, as said before, 3) the arbitrary use of forms borrowed from the past. As a result the nineteenth century is considered to be an age of confusion and decline. Protests against historicism were expressed from time to time.

During the second half of the nineteenth century, a new kind of architecture related to the new industrial technology came into being, demanding that architecture ought to be generated through geometry; and in contemporary projects using the cube, pyramid, cone, cylinder and sphere with true and original values. The forms were transferred to new types of buildings and the creative work of this period are the great utilitarian structures of iron and glass, where the Baroque concept of an open and dynamic space is given a new interpretation.

The basic problem for settlements in the industrial age was how to combine openness and flexibility with spatial order. To achieve this, the pioneers of modern city planning aimed at new interpretations of the fundamental concepts of place, center, path, linear continuity, and zoning. The general image of a garden city stems from a desire to a return to nature represented by the landscape garden, but lifeless suburbs.

During the nineteenth century the monument, the museum, the dwelling, the theatre, the exhibition hall, the factory and the office building took over the church and the palace that lost their importance as leading tasks.

The Building of 1884 for the Home Insurance Company was the first structure in skeleton construction. This development of technique made buildings of skyscrapers possible. The single-family house by Frank Lloyd Wright destroyed the traditional box to achieve a dynamic interaction of interior and exterior space which represents contributions to a functional, formal and technical concretization of the basic image of open space.

The first important contribution is offered by the French revolutionary architects Ledoux and Boullée, who were active during the last decades of the eighteenth century. Their works are characterized by the use of simple stereo metric volumes and undecorated surfaces, and in important respects they prefigure the elementary character of Functionalist buildings in reinforced concrete. With the introduction of iron and glass construction, it became possible to build articulate structures as have been envisaged in the fictions skeletons of the past.

Towards the end of the nineteenth century this possibility was exploited by talented architects such as Hector Guimard and Victor Horta, and led to the creation of the sensitive and versatile Art Nouveau where modern technology, the new building types, and the basic desire for open space are united with a fine understanding of the quality of natural and human phenomena. As a result, a synthetic new art came into being which represents a fine culmination of the intentions of the epoch.

The best works of the Art Nouveau have a truly organic character, and, in fact, Panckok defined its aim as the transformation of dead matter into an organic being, it also represented a humanization of modern technology. In the work of the Spanish architect Antonio Gaudi the organic quality of the Art Nouveau is given a different plastic interpretation. In America Art Nouveau is paralleled by the articulate sensitivity ornate architecture of Louis Sullivan as an outgrowth of the Nordic feeling for dematerialized structure and transparent space.

In the works of Frank Lloyd Wright, there is a new grammar of spatial articulation. The façade hardly matters any more in his houses. For the first time in history architecture had become a truly three-dimensional problem, and for the first time in history the most advanced architectural ideas were used to solve the problem of dwelling for everyman. In

Wright's work the nineteenth century ends with the promise of a new meaningful human environment where everybody may find his place within an open totality.

Open space indicates an image of a limitless and continuous environment where man may act and freely move about not for the sake of movement as such, but as an expression of a new freedom of choice. The new image, then, is the opposite of the Baroque. Whereas Baroque space represented an integrated system, the open space of the nineteenth century expressed a new ideal of human freedom. In the large halls of iron and glass it appears as a total transparent and luminous milieu, which has lost the traditional character of interior.

The eclectic architecture of the nineteenth century took the particular motif as its point of departure, and tried to organize the borrowed forms by means of abstract, academic rules of composition. However, the interpretation of past meanings in the new form of life was a real and necessary problem, but the failure of historicism has shown that it could not be solved at the outset of the modern development. Only today, after the basic spatial properties and characters of the new architecture have been defined, the more particular meanings of the past return to form part of a more comprehensive and articulate totality.

The modern buildings of the early twentieth century are derived from simple geometric forms of less skin and more glass and a lack of material texture and articulating detail. At the same time, there is a return to the elementary shapes and geometric relationship. The period was characterized by the principle of Functionalism in architecture. It is a rationalization introduced by Louis Sullivan and Frank Lloyd Wright while American architecture at the turn of the nineteenth century was involved in a new way of historicism.

Following them European architects sought basic principles in the belief that the new architecture was the inevitable product of the intellectual and technical condition of that age, and those who shared this belief considered themselves exponents of a modern movement. The modern movement thus took as its point of departure the belief in scientific analysis, and aimed at the definition of standards, but first of all Functionalism had a positive aim based on a strong belief in man and in architecture to become an international movement.

Le Corbusier (1926-1952) developed the general concept of the Functional architecture into his famous five points as: Stilts raise the building above the ground to allow for spatial continuity and free circulation; a roof garden to give back the ground lost under the building and unite it with the surrounding landscape; a free plan makes the stories independent of each other and allows for a meaningful and economic use of space; continuous windows make the spaces open and contact with nature outside; and free façade transforms the massive wall into a screen which may be opened or closed at will.

Mies van der Rohe centered his activity on the development of types and principles between 1919 and 1924 which is worked out with the greatest possible economy of means. In later works Mies developed his method into a systematic grammar of spatial articulation. The decisive step was taken with the Barcelona Pavilion (1929), where space-defining screens are combined with a regular steel skeleton which gives order to the free plan, achieving a synthesis of the two main innovations of the nineteenth century; the open, repetitive order of skeleton construction and the fluid, but articulate space of Frank Lloyd Wright. This synthesis was anticipated by Le Corbusier, and brought to its logical conclusion by Mies van der Rohe. Mies was fully aware of the importance of his achievement and said "The free plan and a clear construction cannot be kept apart. The structure is the backbone of the whole and makes the free plan possible. Without that backbone the plan would not be free, but chaotic and therefore constipated".

Mies' handling of space includes the treatment of corners, joints and other details as well as the choice of materials and textures. In connection with the glass skyscrapers he also pointed out; "I discovered by working with actual glass models that the important thing is the play of reflections and not the effect of light and shadow as in ordinary buildings".

In 1908 Adolf Loos wrote his famous article "Ornament is a Crime". "Cultural evolution means that we have to eliminate any ornament from our artifacts. It shows the greatness of our age that it is unable to produce a new Ornament".

In the Fagus factory by Gropius (1911), the wall is transformed into a light curtain of iron and glass, and the massive corner is eliminated. In Gropius's model factory for the Werkbund exhibition in Cologne (1914) the continuity of the glass curtain was emphasized, and incorporated the dynamic element of a transparent spiral staircase. The building also showed the influence of Wright's destruction of the box in its horizontal and vertical planes. The juxtaposition of separate planes was carried further by the Dutch De Stijl group, and culminated with Rietveld's Schröder House in Utrecht (1924). Le Corbusier also showed an early interest in using proportion to give order and character to the free and symmetrical compositions of the period.

In general, early Functionalist architecture was characterized by abstract formal properties. Architects who were interested in topological organization and plastic articulation, such as Mendelsohn, Häring and Scharoun, remained outside the main development. They represented the organic current which only attained real importance after the Second World War. A desire for a more varied characterization, however, came to the fore around 1930. Mies van der Rohe introduced walls of natural materials, and showed a growing interest in the articulation of structural members and joints. Le Corbusier used rustic walls of stone and rough timber in the Maison de M. Errazuris (1930) and stone walls appeared again in his house of Mme. De Mandrot (1930-31) and the Pavilion of Swiss.

A decisive step towards a reintroduction of natural and regional characters was finally taken by Alvar Aalto towards the end of the thirties. About the same time Le Corbusier invented the strongly plastic brise-soleil. The more varied means of architecture articulation did not, however, interfere with the basic idea of open space, and thus suggested that a true pluralism of characters might be possible within the general universe of modern architecture.

Two main endeavors determined functionalist articulation: the establishment of a unity of form and function, and the recovery of essential meanings. The first aim was satisfied by the free plan, which was made possible by use of independent, regular skeleton structure. The second aim led to a preference for elementary stereo metric volumes, and the avoidance of traditional motifs and ornament. Functionalism thereby led to the process of phenomenization initiated during Mannerist and Baroque periods, and regained some of the archetypal abstractions of primitive architecture.

In general, the Functionalist approach led to a pronounced differentiations of functions and forms. To define the functions and determine their formal consequences. Functionalist architecture therefore easily degenerated into a machinelike juxtaposition of separate parts. One class of spatial organization, however, is almost entirely lacking in Functional architecture; the topological orders. Topological properties are obviously closely related to meanings such as elementary enclosure, palpable-ness, environmental warmth, and the more general variations on a theme.

In the past these meanings were concretized in terms of urban squares and streets, bordered by continuous rows of related but varied buildings, and by intimate interior spaces. It should be realized that the spatial aspect of many important human activities have a topological structure. Early Functionalism, therefore, did not fully satisfy its dictum "design for life". This does not however, justify the criticism that sees functionalism as a failure and finds in it a sacrifice of architecture, as does Lorenzer.

Early Functionalism represented an important and necessary step towards the creation of a fully satisfactory human environment, and it is important to point out that further development towards this goal has grown out of Functionalism. The Functionalist search for essentials was felt in the fields of human activity after the First World War. In art it became manifest as different purist currents, the most important being the pure plastic art of Piet Mondrian and other members of the Dutch De Stijl group.

From what is said above, it follows that it is a misunderstanding to believe that Functionalism was only interested in efficiency. Like any great historical movement, it was first of all concerned with meaning, that is, with the problem of giving man an existential foothold.

Pluralist Architecture

The architecture of the last decades shows an ever-growing diversity. The whole architecture scene seems to have exploded, and the resulting multitude of scattered parts is usually described as visual chaos. When order is encountered, it consists mostly of monotonous repetition of unarticulated elements. At hardly any time before have man's environments been more problematic and his sense of existential foothold less secure. However, some positive phenomena are also present. There is a growing awareness of the importance of the environmental problem, and there are also reasons for presuming that architecture today is in a position to solve the problem. For during the last decades Functionalism has developed into that flexible tool as intended, but not realized between the wars.

The diversity became evident after the Second World War. The most influential Functionalist architect was Mies van der Rohe, who in his American buildings followed a meaningful articulation of skeleton construction. More fruitful however, was the organic current, which took a new interpretation of the concept of function.

The most influential exponent after the war was Alvar Aalto who had suggested an organic approach in his Functionalist buildings from the early 1930s. Aalto reintroduces natural materials and topological forms in the Finnish Pavilion at the New York World's Fair in 1939. The organic movement was also inspired by the later work of Frank Lloyd Wright, such as Taliesin West 1938 and the Guggenheim Museum in New York 1946. To conceive the building as an organ, however, implied a certain danger of a return to a closed self-sufficient form. During the twentieth century, a pluralism of technically founded formal structures has developed, starting in 1950s by Le Corbusier and the first great works of Louis Kahn.

The basic aim of the pluralist approach to architectural form is to obtain individual characterization of buildings and places, an intention which stems from a reaction to the rather scarce variations in character permitted by early Functionalism. At the same time this integration marks a wish to take differences in regional character into consideration. In pluralist architecture the concept of place, path and domain regain their fundamental importance; the problem of spatial identity again comes to the fore.

In 1950 Le Corbusier was given the opportunity to put his theory on city planning into practice when he was asked to direct the development of Chandigarh, the capital of the Punjab in India, Although a general plan had already been worked out by Mathew Nowicki, Le Corbusier succeeded in transforming it in accordance with the basic principles. His master plan shows a characteristic Functionalist differentiation of activities, related to form a meaningful whole.

The most enthusiastic study of the modern box was made by Mies van der Rohe, who defined his aims as follows: "The purpose the building serves is always changing, but we cannot afford to pull buildings down. Therefore we put Sullivan's Slogan's form follows function upside down, and construct a practical and economical space into which we fit the functions". But Mies' concept of building hardly satisfies the environmental needs of our day, even though a juxtaposition of boxes may constitute a kind of "urban free plan" as indicated by the layout of the Illinois Institute of Technology started in 1940.

Le Corbusier also gave primary importance to a simple main form, but from the outset he showed a strong desire for plastic articulation than his contemporaries. In general, his later works are considered important achievements in twentieth century architecture. Kahn succeeds in creating, based on a strong and expressive theme, his dictum is that a building must be "what it wants to be". Alvar Aalto operates with themes which generate spatial patterns with organic sense. Undulating shapes, a desire to let the rooms broaden out towards the light, and patterns that resembles a series of waves, for acoustical reasons.

An imaginative use of reinforced concrete distinguishes the works of Pier Lugi Nervi (1891) which illustrate Mies's dictum "Wherever technology reaches its real fulfillment, it transcends into architecture". In Kahn's works the problem of physical presence is combined with the problem of light, for Kahn has reestablished light as an architectural factor. He defines it as "the given of all presences".

Eero Saarinen (1910-61) aimed at a dramatic characterization of the individual task. Each of his buildings is entirely different. Robert Venturi's works indicate that a new relationship to the past is coming to the fore. He claims, "Familiar things seen in unfamiliar context become perceptually new as well as old". He thus adds a new psychological dimension to architecture, the dimension of memory and association.

Pluralist architecture is generated rather than designed, and as a result the milieu becomes a dynamic totality of interacting organs. Pluralism is not at odds with functionalism, but extends the concept of function beyond its physical aspects. Pluralism takes account of the old. It looks towards the future, but is rooted in the past, and its present makes clearer man's position in space and time. The pluralist architecture of inclusion carries it the danger of environmental chaos if it is superficially interpreted. This danger can only be evaded if the concepts of character and spatial structure are properly understood. So far the problem of character has hardly been studied and the convincing concretizations mentioned above are due to the intuition of individual architects of genius. Granted that the role of intuitive creation is important, an awareness of environmental characters has to be developed through education. The problem of spatial structure is better understood, probably because it is more abstract, and more easily open to scientific investigation.

Pluralism usually called "modern architecture", forms the natural conclusion to the development which was initiated by the architecture of the Enlightenment and carried on by Functionalism. Pluralism does not imply a return to a multitude of closed worlds, but means that each solution should interpret openness in its own characteristic way. In pluralist architecture the basic notion of open space has been transformed into the concept of open growth or open form.

The basic aim of pluralism is a new synthesis of freedom and order. Kahn has said that "Form precedes design". Freedom means that the solution is free to shape itself, as a product of inner and outer forces. Pluralism suggests that man has lost his belief in global solutions, and hence in an international style. The modern movement has been the only living architectural force since the end of the Baroque epoch, and the modern movement tended towards pluralism.

Conclusion

The purpose of architecture is to make meanings manifest as a concrete system of places, paths and domains. In other words, phenomenization means a necessary liberation from the abstract world of totalitarian systems and not as a substitute.

Man is flexible, and at the same time capable of further developing his functions. Man is also characterized by adaptability and is thus free to shape his own destiny because of his ability to abstract and generalize. This means that man is capable of recognizing similarities and relationships between phenomena and discovering the laws which govern natural and human processes. This implies that the meaning of any phenomenon is the context in which it appears. The faculty of abstraction and generalization, or induction, is therefore the basic distinction of man, and the experience of meaning his basic need. Participation in a culture means that one knows how to use its symbols through perception and representation which is tied to concrete actions, or rather interaction between the subjects on the environment; an environment that consists of hostile and friendly objects.

Later development produces a differentiation of symbolic systems, which in general can be classified as descriptive and non-descriptive symbolic systems. The main descriptive systems are science and philosophy, and the non-descriptive is art. The work of art concretizes an experienced life-situation where several levels of reality are interacting. Artistic articulations express the complexities and contradictions inherent in life.

Existential space forms a framework of man's actions. This existential space is not identical with geographic space, as defined in purely physical terms, but is determined by experienced properties, processes and interactions. It is therefore usually not homogenous and neutral, but has a quantitative and live character.

Private existential space is constituted during mental development through interaction between the individual and his environment. As a result an image is formed which consists of three-dimensional relations between meaningful objects. A public existential space is constituted by the most stable, common properties belonging to a large number of private existential spaces. It has the character of a cultural tradition which undergoes a relatively slow process of change and development. It thereby becomes possible for the individual to use the environment in a meaningful way.

According to many traditions, the creation of the world was begun in a center and for this reason the building of towns must also develop around a center. If the concept of center of the world designates an ideal, public goal, the word home tells us that any man's world has a center. The place is therefore experienced as inside in contrast to a surrounding outside, and has to be small to offer psychological security.