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ARCHITECTURE AS SPACE

HOW TO LOOK AT ARCHITECTURE

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ARCHITECTURE—THE UNKNOWN

IT IS virtually standard procedure for a history or criticism of architecture to begin with an attack on the layman. Nineteen out of twenty of the books cited in our bibliography open with complaints and apologies, such as:

"The public is interested in painting and music, in sculpture and literature, but not in architecture. The intellectual, who would feel ashamed not to recognize a painter of the rank of Sebastiano del Piombo and who would turn pale at being charged with ignorance of a painting by Matisse or of a poem by Éluard, feels perfectly at ease in confessing that he doesn't know who Buontalenti or Neutra might be"; or

"Newspapers devote whole columns to a new book by Koestler or to an exhibition of Morandi, but ignore the construction of a new building, even if it's the work of a famous architect. Whereas every self-respecting newspaper has regular coverage of music, theater, movies and, at the very least, a weekly art column, architecture remains the great unknown"; or

"Just as no adequate means exist for information about good architecture, so there are no effective means for impeding the construction of architectural horrors. There is a certain censorship for films and for books, but not for the prevention of architectural and urban outrages, which have far more serious and lasting consequences than the publication of a pornographic novel," or, finally,

"Nevertheless [and this is where the apologies come in] while everyone is free to shut off the radio, to walk out on concerts, to shun the movies and the theater, and to stop reading a book, no one can close his eyes to the buildings which form the setting of city life and which set man's stamp on the countryside."

The lack of public interest in architecture cannot be considered

inevitable and inherent in human nature[1] or in the nature of a building,[2] so that we need only limit ourselves to the mere statement of such indifference. Undoubtedly there are material difficulties to overcome; and there is an incapacity on the part of architects, historians of architecture and art critics to make themselves apostles of architecture, to spread the love of architecture, if not to the general public, then at least to the cultivated.

Above all there is the physical impossibility of transporting buildings, as one does paintings, to a given place in order to exhibit them. To look at architecture with any system and intelligence one must already have a lively interest in the subject and be provided with a good deal of good will. The average man who visits an historical city and feels duty-bound to admire its buildings makes the rounds according to purely practical considerations: today, in a given quarter, he visits a Baroque church, then a Roman ruin, then a modern square, then an Early Christian basilica; tomorrow he goes to another section of the city and, on the "second day of the tour," as his Baedeker puts it, he falls into the same confusion of distant and different types of unrelated architecture.[3*] How many tourists decide to visit all the Byzantine churches today, the Renaissance monuments tomorrow and modern works the day after tomorrow? How many of us can resist the temptation to break the order of our viewing to admire the Romanesque tower that rises behind a Baroque church or to go back into the Pantheon, right there within easy reach of the Gothic pile of Santa Maria sopra Minerva? It is possible to gather from all over the western world the paintings of Titian or of Brueghel and so reveal their special quality in single great exhibitions; it is possible to perform the works of Bach or of Mozart in concerts devoted to them, but an exhibition of Francesco di Giorgio or of Neumann can be put together only at the expense of one's own fatigue, which presupposes a real passion for architecture.

This passion, alas, rarely exists. The tenacity and devotion of archeologists, splendidly praiseworthy in the field of philology, rarely rise to that level of evocative recreation which arouses a sympathetic echo in the public. Professional architects, who, in order to explore the problems of contemporary architecture, must necessarily have a profound

passion for architecture in the living sense of the word, are largely lacking today in the specific cultural background which would qualify them for a knowledgeable entry into the arena of historical and critical debate. The culture of modern architects is too often limited by their chronic controversies. In their fight against feebly imitative or falsifying academicism they have more than once, if only unconsciously, declared their lack of interest in the valid works of the past, and in this way have failed to draw from these works the vital, permanent guiding principle without which no avant-garde position might broaden into a whole cultural complex. We are speaking not only of Frank Lloyd Wright and his disparagement of the Italian Renaissance (anything can be forgiven a genius, particularly critical unobjectivity), but also of the cultural inclination of Le Corbusier, whose superficial skimming and impressionistic judgment of various periods in the history of architecture[4] is more an elegant, brilliant intellectual exercise than a fruitful contribution to a critical reevaluation of architecture. *Les yeux qui ne voient pas,* the eyes which do not see the beauty of Purist forms are eyes that today do not see and do not understand the lessons of traditional architecture.

Much remains to be done. It is the task of the second generation of modern architects, once having overcome the psychological break involved in the birth of the functionalist movement, to reestablish a cultural order. The moment of ostentatious novelty and avant-garde manifestos has passed and modern architecture must now take its place in architectural tradition, aiming above all at a critical revision of this very tradition. It has become evident that an organic culture cannot, in dealing with the past and specifically with architectural history, use two standards of judgment, one for modern and another for traditional architecture, if it is, as it must be, designed to provide modern disoriented and rootless man with a base and a history, to integrate individual and social needs which manifest themselves today as an antithesis between freedom and planning, theory and practice. Once we are able to apply the same criteria in evaluating contemporary architecture and that of previous centuries, we shall be taking a decisive step forward in this direction.

With this in mind, it is remarkably enlightening to subject the many books on esthetics, art criticism and the history of architecture to this simple test: to the volumes of an historical character, add a chapter on modern architecture, and see whether the fundamental critical concepts are still valid; to the volumes strongly pro-modern, add chapters on the architecture of the past, and then note the absurdities to which the extension of the purely functionalist or rationalist point of view in criticism would lead.

Few volumes would survive a test of this sort. In fact, most historical works can be eliminated, from the start, for lack of vitality, for inability to address the lively interests of living men without which the history and criticism of architecture become archeology in the dead sense of the word. Many recent books fail this test because of their partiality for the modern or because of the perennially childlike and monotonously ingenuous enthusiasm of those—and there is one born every day—who are still discovering the functionalist revelation. This revelation, now a quarter of a century old, almost generally accepted and culturally absorbed, has finally reached the age of maturity at which time every human being, and every human message, should set itself vaster aims than self-defense.

These, in brief, are the positions of the public, the archeologists and the architects. Now how far along have the art critics come? Apparently they have advanced somewhat. Fifteen years ago, when sociologists and thinkers on the level of Lewis Mumford were already concerning themselves with the problems of historical and contemporary architecture, one rarely found art critics devoting themselves specifically to these problems. Today things are different. We find art critics everywhere who deal almost exclusively with architecture, and a number who are concerned with it periodically. It is significant that architecture is now commonly treated in art magazines, that monthly publications like *Art News* of New York and *The Studio* of London publish a regular review of the most important architectural works, and that there are now architectural experts on the staffs of dailies like the *London Times* and the *New York Times.* In Italy, too, some of the best art critics, men like Argan and Ragghianti, perfectly understand

the importance of architecture and are working together to make it more widely known.

But if we probe further into this new development, which at first seems so comforting, we find that beneath the appearance of quantity the substance is often unsatisfactory. And the fundamental reason is the same insufficiency which renders inadequate the chapters on architecture in most histories of art written by art critics.

What is this characteristic defect? It has been said repeatedly: It consists in the fact that buildings are judged as if they were sculpture and painting, that is to say, externally and superficially, as purely plastic phenomena. It is not merely an error of critical method; it is a misconception arising from the lack of a philosophical position. By affirming the unity of the arts and thereby granting to those qualified in one branch of artistic activity the same qualification to understand and to judge *all* works of art, critics extend the methods of evaluating painting to the entire field of the plastic arts and so reduce everything to pictorial values. In this way they fail to consider what is peculiar to architecture and therefore different from sculpture and painting. In other words, they miss the qualities which are uniquely essential to architecture.[5]

In the last half century, particularly in the last thirty years, the renewal of painting which began with Cubism has represented a simplification of the pictorial formula. The movements which followed first proclaimed a liberation from subject and verisimilitude, then heralded the advent of abstract art. That content did not matter was shouted from the housetops, and finally content was eliminated. Line, color, form, volume, mass, space-time, the totem words of modern art criticism, have become popular if vague conversational clichés. It is said that the artist "stylizes" humanity and that the value of modern painting is of an "architectonic" character. This adjective reverberates everywhere with the force of a superficially definitive statement. From a sketch by Van Gogh to a bas-relief by Manzu, from the *Adam* of Epstein to the *Guernica* of Picasso, everything whose expressive form is ordered through synthesis and shows a trend toward simplification of representation, and everything which sets out to render in visual form

the essence of some aspect of reality without the addition of adjectives and decoration has been defined as "architectonic." Architecture has in this way come back into fashion, not for its intrinsic qualities, but because "architectonicity" supposedly characterizes recent movements in painting.

The phenomenon will seem less surprising if we consider that, in spite of all esthetic declarations, art criticism has been based largely on representational content. Architecture, on the other hand, has remained uncongenial to the average art critic, because it did not permit him those romantico-psychological evocations in which he could indulge when writing of painting and sculpture; in other words, because he found architecture an "abstract" art. Once modern painting required a reform in its vocabulary of criticism, it was natural to turn precisely to architecture and to music, which, by a superficial and overworked classification, was paired with architecture because of a supposed brotherhood in abstraction.

For those in pursuit of criticism for effect and salon brilliance, this modern confusion of tongues opened infinite possibilities. Even scholars as serious as Giedion took pleasure in comparing the equilibrium of a *danseuse* by Degas with the immobility of the foot of the arches in the Galerie des Machines at the Paris Exposition of 1889, or in coupling a Mondrian painting with a planimetric rendering by Mies van der Rohe, or a curvilinear town plan of Le Corbusier with the volutes of a Borromini or of a Jones. All games of chance, pleasant as intellectual gymnastics, they are little more than play.

No one can stop anyone from talking about the Cubism of Le Corbusier, the Constructivism of the early Terragni, the Neo-Plasticism of Mies. And we may occasionally study such remarks for what they reveal of a vague current in current taste. (Besides, they are almost always entertaining and stimulating.) However, two facts must be recognized: 1) this method continues to apply to architecture criteria used in the criticism of painting, with the sole small difference that the concepts valid for contemporary painting are now applied to contemporary architecture, whereas previously the concepts of traditional painting were applied to traditional architecture; 2) the history and criti-

cism of architecture will not advance one step by following this road.

The public ignorance of architecture! The public lack of interest in architecture! How, in the face of such confusion among critics, can we honestly blame the public? Isn't it perhaps the lack of a valid and clear interpretation of architecture that determines public ignorance and lack of interest? If engineers continue to write histories of architecture which are concerned entirely with the history of technical construction, how can we expect the great public to follow them? If archeologists persist in their philological erudition, how can we expect to engage the passions of non-specialists? If, on the other hand, art critics treat architecture as a reflection, an echo of tendencies in painting, why should the public bother with architecture instead of turning directly to the primary sources—painting and sculpture?

If we really want to teach people *how to look at architecture*, we must first of all establish a clarity of method. The average reader, leafing through books on the esthetics and criticism of architecture, is horrified by the vagueness of their terms: *truth, movement, force, vitality, sense of outline, harmony, grace, breadth, scale, balance, proportion, light and shade, eurhythmics, solids and voids, symmetry, rhythm, mass, volume, emphasis, character, contrast, personality, analogy*. These are attributes of architecture which various authors use as classifications without specifying what they refer to. They certainly have a legitimate place in the history of architecture, but on one condition: that the *essence* of architecture be made clear.

This need for a new critical formulation—it need hardly be stated—does not find its first expression in these pages. Apart from the intuitions of the older critics and historians from Lao Tse to Vischer, from Vasari to Goethe, from Schopenhauer to Milizia and Wölfflin, it can be said that every book of architectural criticism contains at least one passage which touches on this need. In the critical literature of recent years these references have become increasingly frequent. Some books, notably those by Pevsner, have opened the way. The present contribution, therefore, does not constitute a discovery. It is intended simply to sum up and clarify recent critical conclusions, to harvest what preceding scholars have sowed with intelligence, patience and labor.

II SPACE—PROTAGONIST OF ARCHITECTURE

A SATISFACTORY history of architecture has not yet been written, because we are still not accustomed to thinking in terms of *space*, and because historians of architecture have failed to apply a coherent method of studying buildings from a spatial point of view.

Everyone who has thought even casually about the subject knows that the specific property of architecture—the feature distinguishing it from all other forms of art—consists in its working with a three-dimensional vocabulary which includes man. Painting functions in two dimensions, even if it can suggest three or four. Sculpture works in three dimensions, but man remains apart, looking on from the outside. Architecture, however, is like a great hollowed-out sculpture which man enters and apprehends by moving about within it.

When you want a house built, the architect shows you a rendering of one of the exterior views and perhaps a perspective sketch of the living room. Then he submits plans, elevations and cross-sections; in other words, he represents the architectural volume by breaking it down into the vertical and horizontal planes which enclose and divide it: floors, roof, exterior and interior walls. Our illiteracy regarding space derives mainly from the use of these means of representation, which have been carried over into technical books on the history of architecture and into popular histories of art, where they are supplemented by photographs.

The plan of a building, being nothing more than an abstract projection on a horizontal plane of all its walls, has reality only on paper and is justified only by the necessity of measuring the distances between the various elements of the construction for the practical execution of the work. The façades and cross-sections of the exteriors and interiors serve to measure height. Architecture, however, does not consist in the sum of the width, length and height of the structural elements which

enclose space, but in the void itself, the enclosed space in which man lives and moves. What we are doing, then, is to consider as a complete representation of architecture what is nothing more than a practical device used by the architect to put on paper specific measurements for the use of the builder. For the purpose of learning how to look at architecture, this would be more or less equivalent to a method which described a painting by giving the dimensions of its frame, calculating the areas covered by the various colors and then reproducing each color separately.

It is equally obvious that a poem is something more than just a sum of fine verses. To judge a poem, you must study it as a whole, and even if you then proceed to the analysis of each of its verses, you must do it with reference to the context. Anyone entering on the study of architecture must understand that even though a plan may have abstract beauty on paper, the four façades may seem well-balanced and the total volume well-proportioned, the building itself may turn out to be poor architecture. Internal space, that space which, as we shall see in the next chapter, cannot be completely represented in any form, which can be grasped and felt only through direct experience, is the protagonist of architecture. To grasp space, to know how to *see* it, is the key to the understanding of building. Until we have learned not only to understand space theoretically, but also to apply this understanding as a central factor in the criticism of architecture, our history, and thus our enjoyment, of architecture will remain haphazard. We shall continue to flounder in a critical language which describes buildings in terms proper only to painting and sculpture.[6] At best we shall be praising space as abstractly imagined and not as concretely experienced.[7] Studies and research will be limited to philological contributions, such as the study of social factors (function), constructional data (technics), volumetric or decorative characteristics (plastic and pictorial elements). These contributions are unquestionably highly useful, but they are ineffectual in communicating the value of architecture, if we omit its spatial essence. Our use of words like *rhythm, scale, balance, mass* will continue to be vague until we have succeeded in giving them meaning specific to the reality which defines architecture, and that is: space.

An enormous and certainly disproportionate number of pages devoted to architecture in textbooks on art deal with the sculptural, pictorial, social and sometimes even the psychological history (through the study of artists' personalities) of buildings; not with their architectural reality or with their spatial essence. Of course, such material has its value. For example, anyone unacquainted with Italian who wishes to read the *Divine Comedy* will, obviously, find it useful to learn the meaning of its words and, by studying the syntax of Medieval Italian, learn the meaning of its sentences. It would be useful, as well, to learn the history and theology of the Middle Ages, the material and psychological vicissitudes in the life of Dante. But it would be absurd to forget, in the course of these preparatory labors, one's original motivation and final purpose, which is to relive the *Divine Comedy*. All archeological and philological study is useful only insofar as it prepares and enriches the ground for an integrated history of architecture.[8]

What, then, is architecture? And, perhaps equally important, what is non-architecture? Is it proper to identify architecture with a beautiful building and non-architecture with an ugly building? Is the distinction between architecture and non-architecture based on purely esthetic criteria? And what is "space," which we are calling "the protagonist of architecture"? How many dimensions does it have?

These are the basic questions which present themselves in formulating a criticism of architecture. We shall try to answer them by beginning with the last, which is the most specific.

The façade and walls of a house, church or palace, no matter how beautiful they may be, are only the container, the box formed by the walls; *the content is the internal space.* In America, schools of industrial design teach the art and craft of designing packages, but none of them has ever thought of confusing the value of the box with the value of what it contains. In many cases, container and contained are mutually interdependent, as in a French Gothic cathedral or in the majority of genuinely modern buildings, but this cannot be taken as a rule, because it is not true of a vast number of buildings, notably those of the Baroque period. Frequently in the course of the history of architecture, we find buildings which show a clear discrepancy between container and con-

tained, and even a hasty analysis will show that often, in fact too often, the box formed by the walls has been the object of more thought and labor than the architectural space itself.[9] Now, then, how many dimensions does this building-container have? Can they be legitimately identified with the dimensions of the space contained, which is architecture?

The discovery of *perspective* or graphic representation in three dimensions—height, width, depth—led Renaissance artists of the fifteenth century to believe they had finally mastered the dimensions of architecture and the means of reproducing them. The buildings illustrated in *pre*-Renaissance painting do, in fact, look flat and distorted. Giotto took great pains to put architectural backgrounds into his frescoes, but technically his success was only relative. (He knew, of course, how to turn his limitation to good esthetic account, emphasizing flat chromatic design which would have been completely altered had he known and used three-dimensional representation.) At that time painters still worked in two dimensions, but the rigid frontality of the Byzantine was giving way to a more naturalistic style, at least in the figures. A greater ability to paint pictorial passages from light to dark made it possible to transfer to a flat surface the results of plastic experiments in sculpture. In Pisan architecture the surfaces of cathedral façades were broken and given depth, as well as chromatic vibrancy, through the use of superimposed rows of colonnettes. Not before the discovery of perspective, however, was it possible to achieve an adequate representation of architectural interiors or exteriors. Once the laws of perspective had been elaborated, the problem appeared to be solved: architecture, it was said, has three dimensions; here is the method of drawing them, which anyone can use. From the time of Masaccio, Fra Angelico and Benozzo Gozzoli to Bramante and the Baroque masters on up to the nineteenth century, innumerable painters worked along with designers and architects to represent architecture in perspective.

When, in the last decade of the nineteenth century, the reproduction of photographs, and thus their mass distribution, became a simple process, photographers took the place of draftsmen, and a click of the shutter replaced those perspectives which enthusiastic students of archi-

tecture had been laboriously tracing ever since the Renaissance. But at that very moment, when everything seemed critically clear and technically perfect, the mind of man discovered that a *fourth* dimension existed in addition to the three dimensions of perspective. This was the Cubist revolution in the concept of space, which took place shortly before the first World War.

We shall not take more time in discussing the fourth dimension than is strictly necessary for our purpose. The Paris painter of the late 1900's reasoned more or less as follows: "I see and represent an object, for example a box or a table. I see it from one point of view. But if I hold the box in my hands and turn it, or if I walk around the table, my point of view changes, and to represent the object from each new viewpoint I must draw a new perspective of it. The reality of the object, therefore, is not exhausted by its representation in the three dimensions of one perspective. To capture it completely, I must draw an infinite number of perspectives from the infinite points of view possible." This successive displacement *in time* of the angle of vision adds a new dimension to the three dimensions of tradition. Thus *time* was baptized the "fourth dimension." (The means used by Cubist painters to render the fourth dimension—superimposing the images of an object seen from various points of view, in order to project them all simultaneously on canvas—do not concern us here.)

The Cubists were not content with the plural representation of the exterior of an object. Their passion for discovery, for grasping the total reality of an object, led them to the following thought: in every physical structure there is not only an external form, there is also an internal organism; besides the skin, there are the muscles and the skeleton, the internal constitution. And so in their paintings they show simultaneously not only the external aspects of a box, for example, but also the box in plan, the box exploded, the box smashed.

The Cubist conquest of the fourth dimension is of immense historical importance quite apart from the esthetic evaluation that can be made for or against Cubist painting. You may prefer a Byzantine mosaic to a fresco of Mantegna without thereby denying the importance of perspective in the development of experiments in dimension. Similarly,

it is possible to dislike the paintings of Picasso and still recognize the value of the fourth dimension. The fourth dimension has had a decided application to architecture, not so much for the translation of the pictorial language of the Cubists into architectural terms in the early stages of the modern French and German movements, as for the scientific support it has given to the critical distinction between real buildings and buildings on paper, between architecture and stage designing—a distinction which for a long time had been problematical.

The concept of the fourth dimension seemed to end, once and for all, the search for dimensions characteristic of architecture. To examine a statuette, we pick it up and turn it in our hands. We look at it from all angles. We walk around larger figures and groups to examine them from all sides, close-up and from a distance. In architecture, it was reasoned, there is the same element of time. In fact, this element is indispensable to architecture: from the first hut to the modern house, from the cave of primitive man to the church, school or office of today, no work of architecture can be experienced and understood without the fourth dimension, without the time needed for our walk of discovery within it. The problem again appeared to be solved.

However, a dimension common to all the arts obviously cannot be peculiar to any one of them, and therefore architectural space cannot be thought of entirely in terms of four dimensions. This new factor of *time* has, in fact, a meaning in architecture which is antithetical to its meaning in painting.

In painting, the fourth dimension is a quality *inherent* in the representation of an object, an element of its reality which a painter may choose to project on a flat surface without requiring physical participation on the part of the observer.

The same thing is true of sculpture: in sculpture the "movement" of a form, for example by Boccioni, is a quality *inherent* in the statue we are looking at, which we must relive visually and psychologically.

But in architecture we are dealing with a concrete phenomenon which is entirely different: here, man *moving about within the building*, studying it from successive points of views, himself creates, so to speak, the fourth dimension, giving the space an integrated reality.[10]

Elaborate treatises have of course been written on the subject; our problem here is simply to give a clear explanation of an experience familiar to everyone. To be more precise, the fourth dimension is sufficient to define the architectural volume, that is, the box formed by the walls which enclose space. But the space itself—the essence of architecture—transcends the limits of the four dimensions.

How many dimensions, then, does space, this architectural "void," have? Five, ten, an infinite number perhaps. For our purpose it is enough to establish that architectural space cannot be defined in terms of the dimensions of painting and sculpture. The phenomenon of space becomes concrete reality only in architecture and therefore constitutes its specific character.

Having arrived at this point, the reader will understand that the question, "What is architecture?", has already been answered. To say, as is usual, that architecture is "beautiful building" and that non-architecture is "ugly building" does not explain anything, because "ugly" and "beautiful" are relative terms. It would be necessary, in any case, first to formulate an analytic definition of "What is a building?", which would mean starting once more from the beginning.

The most exact definition of architecture that can be given today is that which takes into account *interior space*. Beautiful architecture would then be architecture in which the interior space attracts us, elevates us and dominates us spiritually (as in the case of Chartres Cathedral); ugly architecture would be that in which the interior space disgusts and repels us (you might prefer to choose your own example). But the important thing is to establish that no work lacking interior space can be considered architecture.

If we admit this much—and to admit it seems to be a matter of common sense, not to say of logic—we must recognize that most histories of architecture are full of observations that have nothing to do with architecture in this specific meaning. They devote page after page to the façades of buildings which in effect are sculpture on a large scale, but have little to do with architecture in the *spatial* sense of the word. An obelisk, a fountain, a monument, a bridge, big as they may be—a portal, a triumphal arch—are all works of art which are discussed in his-

tories of architecture although they are not properly architecture. Architectural backdrops or any sort of painted or drawn architecture are not true architecture any more than a play not yet put into dialogue, but only sketched in its broad outlines, can be regarded as a dramatic performance. In other words, the experience of space is not communicated until the actual mechanical expression has rendered material the poetic conception. Were we to take any history of architecture and severely prune it of everything not strictly concerned with architecture, it is certain that we should have to do away with at least eighty out of every hundred pages.

At this point, two serious misunderstandings may arise in the mind of the reader which would not only destroy the value of the preceding argument, but would even make the interpretation of architecture as space ridiculous. They are:

1) that architectural space can be experienced only in the interior of a building, and therefore urban or city-planned space, for all practical purposes, does not exist or have any value;

2) that space is not only the protagonist of architecture, but represents the *whole* of architectural experience, and that consequently the interpretation of a building in terms of space is the *only* critical tool required in judging architecture.

These two possible misunderstandings must be cleared up immediately:

The experience of space, which we have indicated as characteristic of architecture, has its extension in the city, in the streets, squares, alleys and parks, in the playgrounds and in the gardens, wherever man has defined or limited a *void* and so has created an enclosed space. If, in the interior of a building, space is defined by six planes (floor, ceiling and four walls), this does not mean that a void enclosed by five planes instead of six—as, for example, a (roofless) courtyard or public square—cannot be regarded with equal validity as space. It is doubtful whether the experience of space one has in riding in an automobile along a straight highway through miles of uninhabited flatland can be defined as an architectural experience in our present use of the term, but it is certain that all urban space wherever the view is screened off, whether

by stone walls or rows of trees or embankments, presents the same features we find in architectural space.

Since every architectural volume, every structure of walls, constitutes a boundary, a pause in the continuity of space, it is clear that every building functions in the creation of two kinds of space: its internal space, completely defined by the building itself, and its external or urban space, defined by that building and the others around it. It is evident then that all those subjects which we have excluded as not being true architecture—bridges, obelisks, fountains, triumphal arches, groups of trees and, in particular, the façades of buildings—are brought into play in the creation of urban space. The specific esthetic value of these elements must remain a question of minor importance until we clear up our second misunderstanding. What interests us at the present point in our discussion is their function in determining an enclosed space. Just as four beautifully decorated walls do not in themselves create a beautiful environment, so a group of excellent houses can define a poor urban space, and *vice versa.*[11]

The second possible misunderstanding would carry our argument to a *reductio ad absurdum* with conclusions totally foreign to our intention in proposing a spatial interpretation of architecture. To maintain that internal space is the essence of architecture does not mean that the value of an architectural work rests *entirely* on its spatial values. Every building can be characterized by a plurality of values: economic, social, technical, functional, esthetic, spatial and decorative. Anyone is free to write economic, social, technical or volumetric histories of architecture, in the same way that it is possible to write a cosmological, Thomistic or political analysis of the *Divine Comedy.*

The reality of a work of art, however, is in the *sum* of all these factors; and a valid history cannot omit any of them. Even if we neglect the economic, social and technical factors, it is clear that space in itself, although it is the principal element in architecture, is not enough to define it. While it is incontestable that beautiful decoration will never create beautiful space, it is also true that a satisfactory space, if it is not complemented by an adequate treatment of the walls which enclose it, is not sufficient to create an esthetic environment. It is common to see a beautiful room ruined by badly used colors, unsuitable furniture or poor

lighting. Doubtless, these elements are of relatively little importance; they can easily be changed, whereas the space remains fixed. But an esthetic judgment of a building is based both on its specific architectural value and on the various secondary factors, which may be sculptural, as in applied or three-dimensional decoration, pictorial, as in the case of mosaics, frescoes and easel paintings or on other factors, such as furniture.

After a century of predominantly decorative, sculptural and a- or non-spatial architecture, the modern movement, with the splendid intent of returning architecture to the expression proper to it, banished decoration from building, insisting on the thesis that volumetric and spatial values are the only values legitimate to architecture. (European Functionalism emphasized volumetric values in architecture; the Organic Movement was more concerned with those of space.)

If it is clear, then, that as architects we should not underscore the *decorative* rather than the *spatial* in architecture, then as critics and historians we should not advance our preferences or dislikes in the field of decorative or figurative means and expressions as the sole yardstick for our judgment of architecture of all periods. This is all the more true because decoration (not in the form of applied ornamentation, but in the new play of contrasting natural materials, in the new sense of color, and so on) is now, quite properly, coming back into architecture after twenty years of architectural nudism, glacial volumetrics, stylistic sterilization and the purging of decorative details, contrary to psychological and spiritual needs. "Freedom from decoration," as an architectural program, can be no more than a polemical, and therefore ephemeral, slogan.

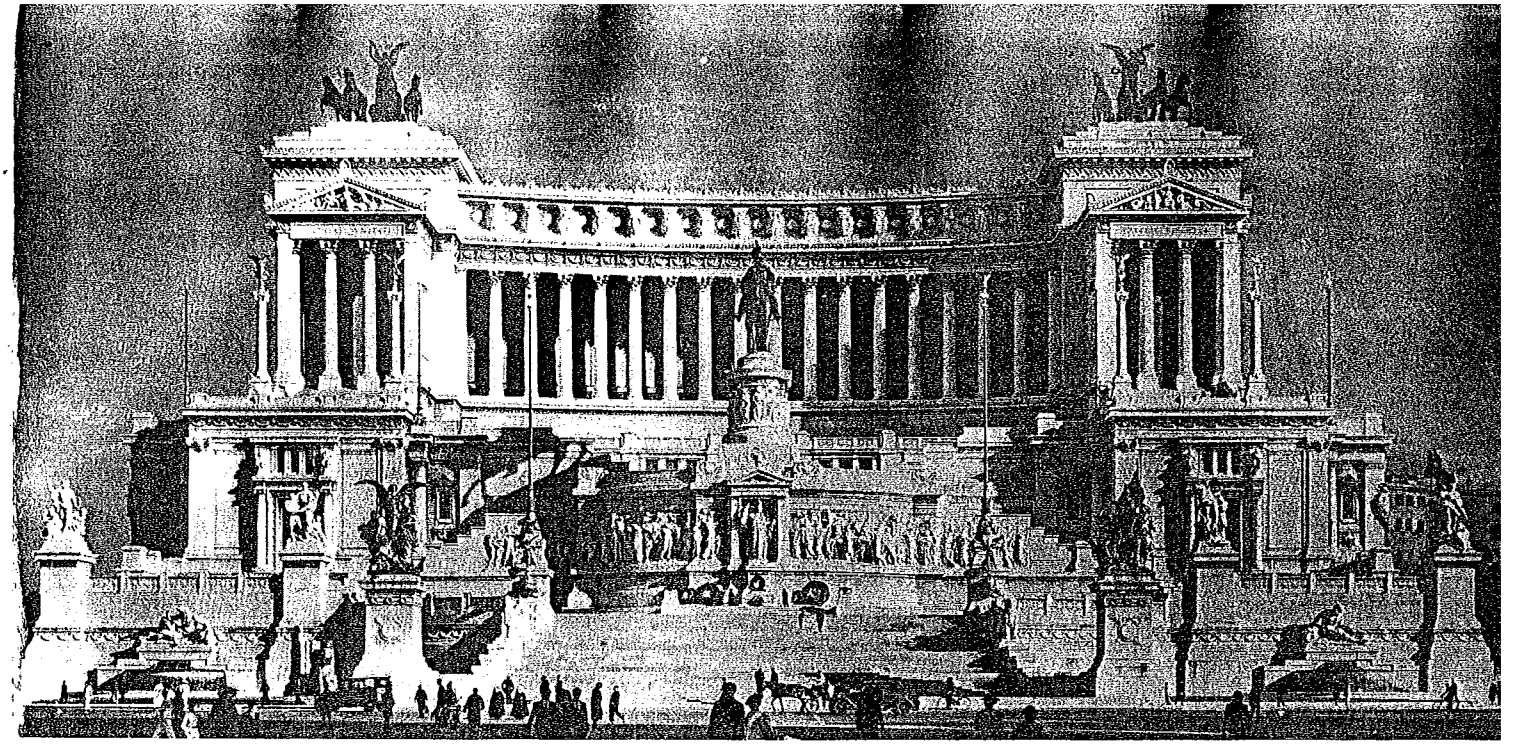
At this point the uninitiated reader will, perhaps, feel confused. If decoration has some importance, if sculpture and painting, earlier thrown out, reappear in the field of architecture, what end has our discussion served? It has not been to invent esoteric theories about architecture, but simply to put order and system into current ideas intuitively felt by everyone. Certainly decoration, sculpture and painting enter into the study of buildings (no less than economic causes, social or functional values and technical considerations). Everything figures in architecture, as it does in every great human phenomenon of art,

thought or practice. But how? Not without differentiation, as one might believe in asserting a generic and vacuous unity of all the arts. Decorating, sculpture and painting enter into the grammar of architecture in their proper places as adjectives, not as substantives.

The history of architecture is primarily the history of spatial conceptions. Judgment of architecture is fundamentally judgment of the internal space of buildings. If, because of its lack of interior space, a work cannot be judged on this basis, as in the case of the types of constructions mentioned above, the structure or building—be it the Arch of Titus, the Column of Trajan or a fountain by Bernini—falls outside the history of architecture and belongs properly, as a volumetric entity, to the history of urbanism; and, with respect to its intrinsic artistic value, to the history of sculpture. If judgment of its internal space proves negative, the structure falls into the category of non-architecture, even if its decorative elements can be treated as belonging to the history of truly fine sculpture. If judgment of its architectural space is positive, the building must be included in the history of architecture, even if the decoration is ineffectual; even if, that is to say, the building as a whole is not entirely satisfactory. When, finally, the judgment of the spatial conception of a building, of its volumetrics and of its decorative quality, proves positive, we are then in the presence of one of those rare, integral works of art in which all the figurative means combine in a superlative artistic creation.

In conclusion, even if the other arts contribute to architecture, it is *interior space*, the space which surrounds and includes us, which is the basis for our judgment of a building, which determines the "yea" or "nay" of esthetic pronouncement on architecture. All the rest is important or perhaps we should say *can* be important, but always in a subordinate relation to the spatial idea. Whenever critics and historians lose sight of this hierarchy, they create confusion and accentuate the present disorientation in architecture.

That space—void—should be the protagonist of architecture is after all natural. Architecture is not art alone, it is not merely a reflection of conceptions of life or a portrait of systems of living. Architecture is environment, the stage on which our lives unfold.

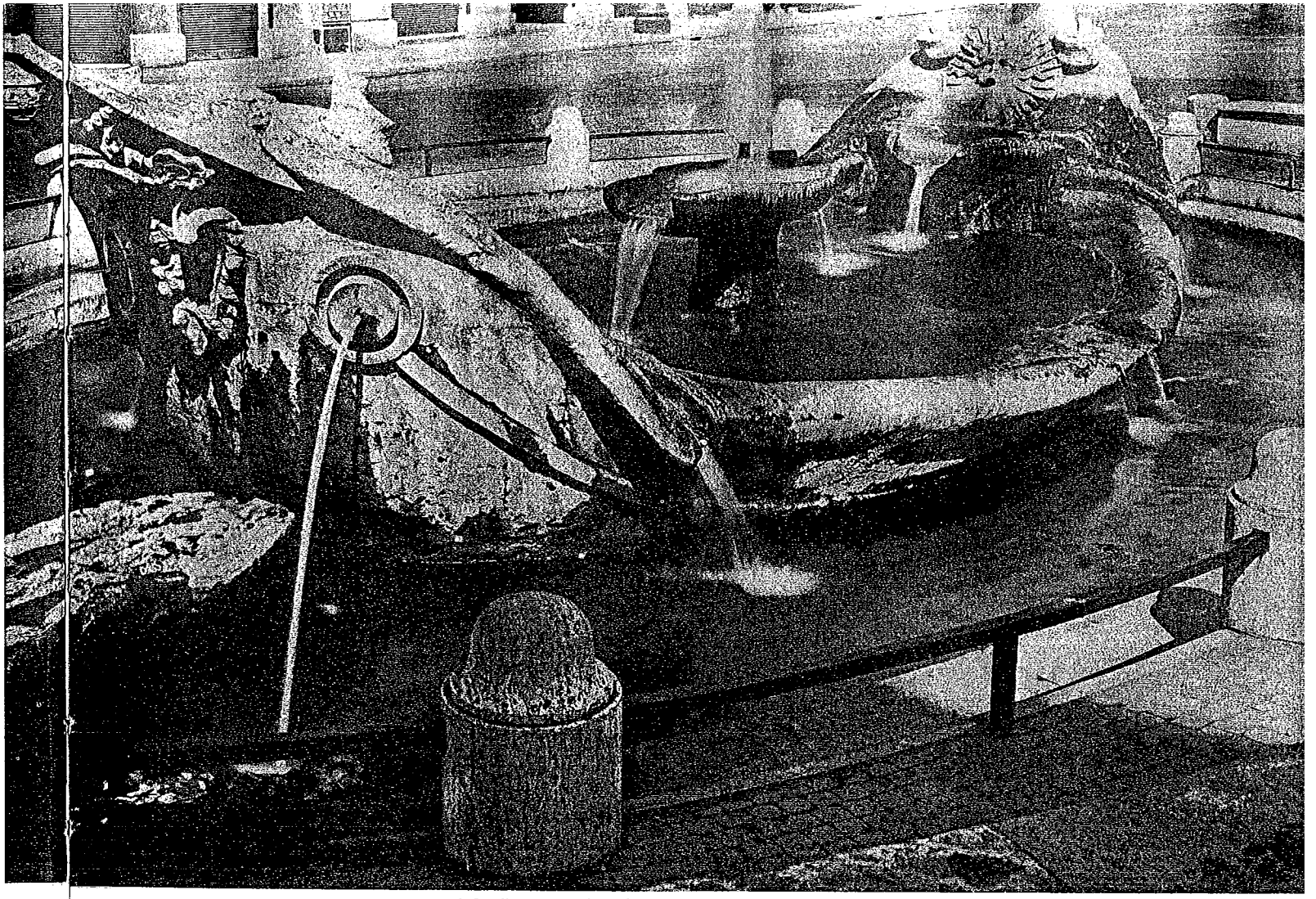


G. Sacconi: Monument to Victor Emanuel II, Rome (1885-1911).

Plate 1. Architecture without internal space

Arch of Titus in the Roman Forum, Rome (81 A.D.).

E. Gallori: Monument to Garibaldi, Rome (1895).

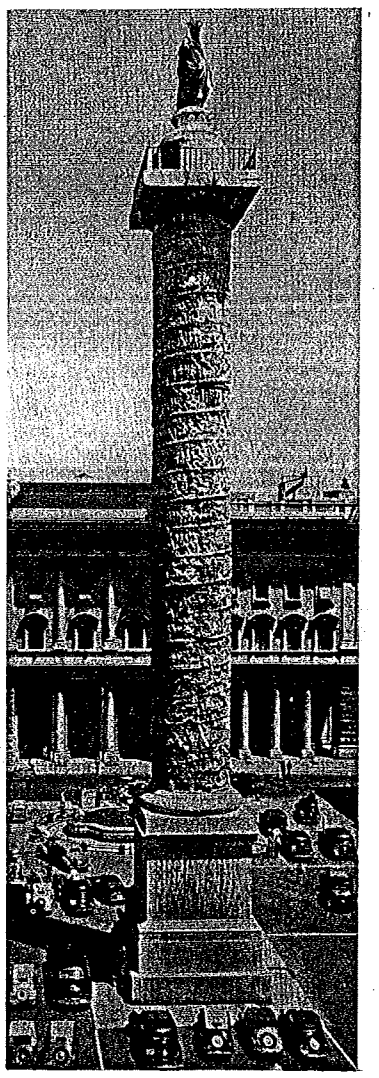


Pietro Bernini: Fountain of the "Baraccia" in the Piazza di Spagna, Rome (17th century).

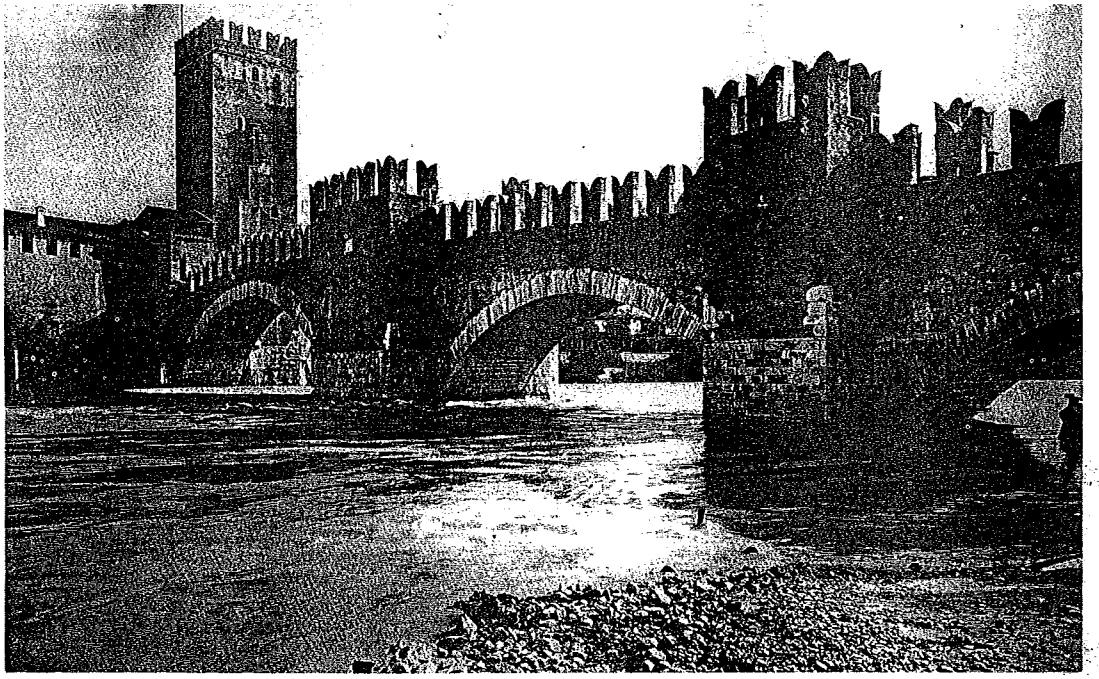
Plate 1. Architecture without internal space

Aqueduct of Claudius (52 A.D.) seen from the Via Appia Nuova, Rome.

Plate 1. Architecture without internal space



Column of Marcus Aurelius in the Piazza Colonna, Rome (2nd century A.D.).



Bridge of Castelvecchio, Verona (1354-56).

Plate 1. Architecture without internal space

Pyramid of Caius Cestus, Rome (15 B.C.).

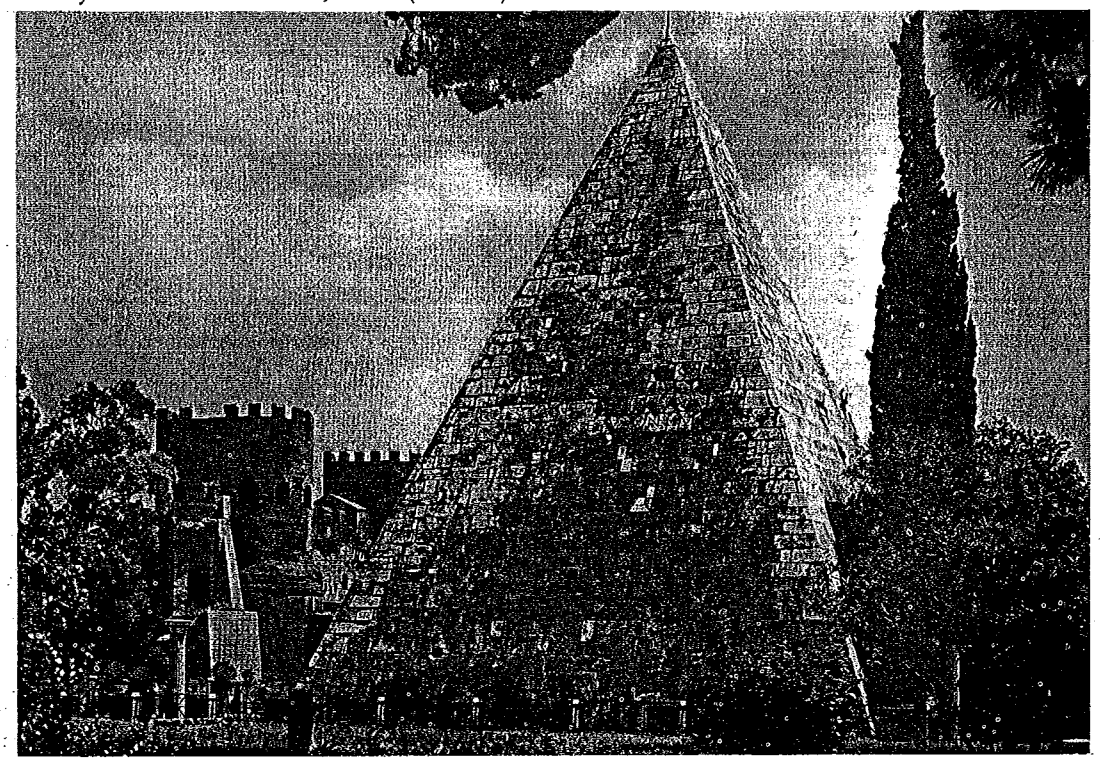
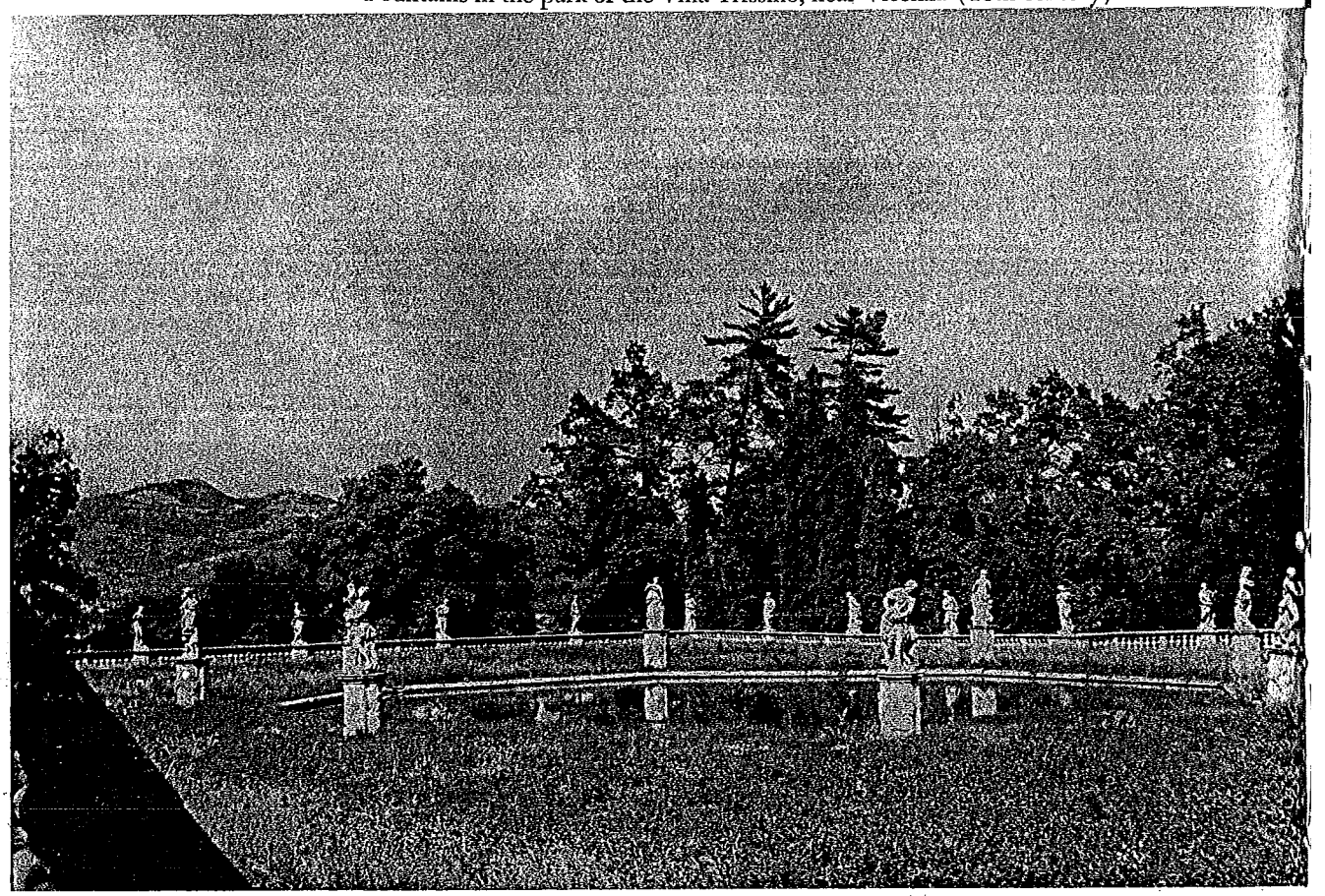
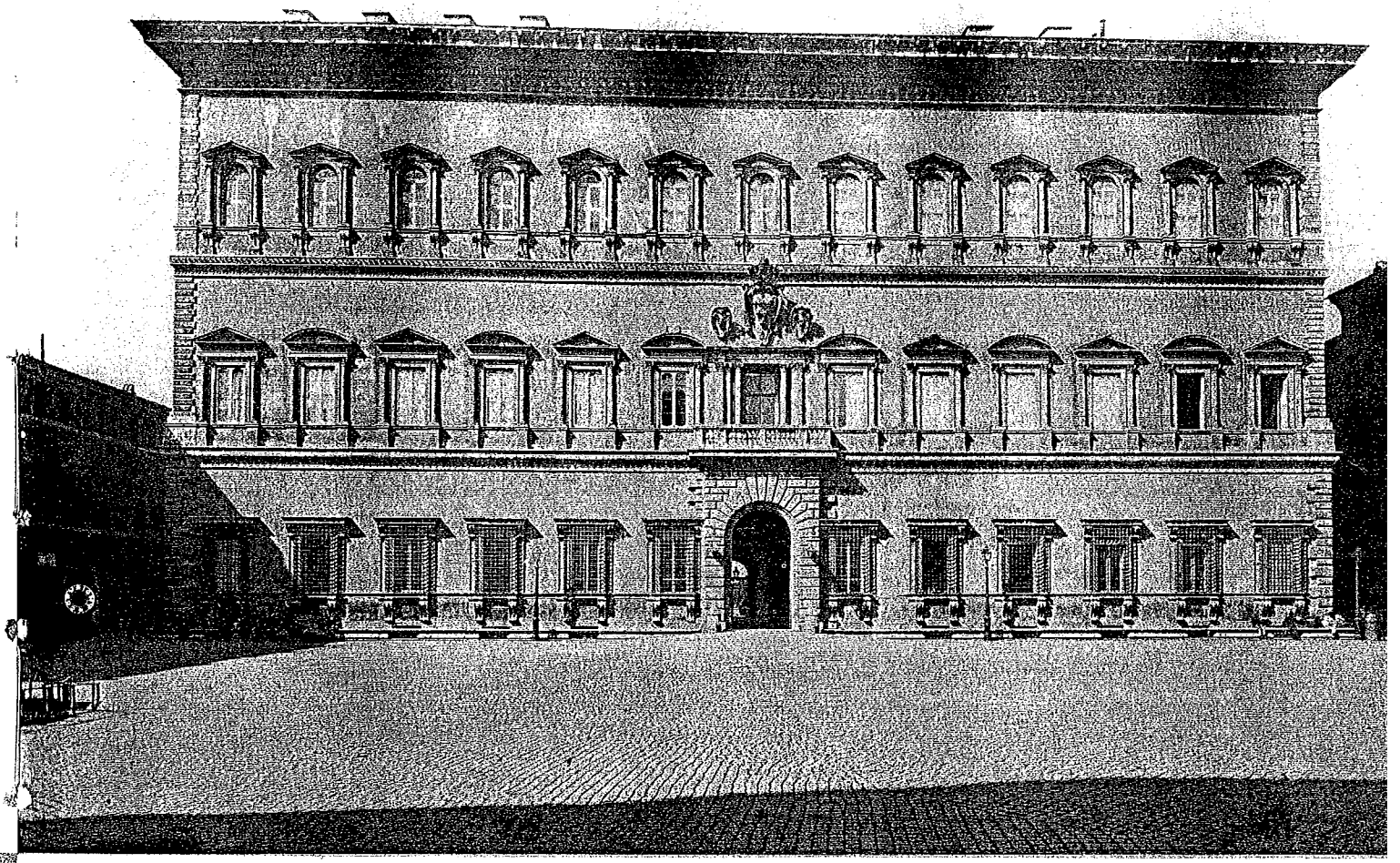


Plate 1. Architecture without internal space

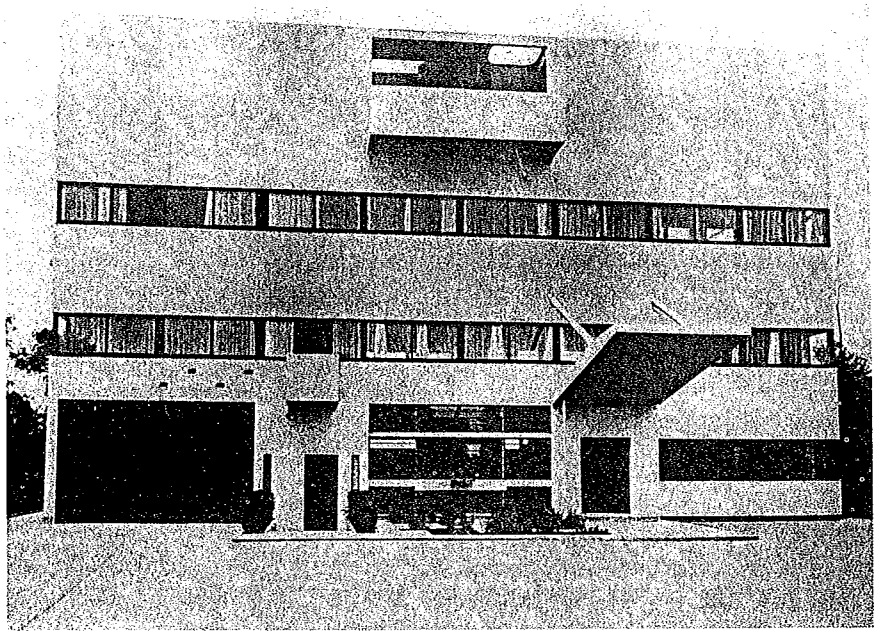
Fountains in the park of the Villa Trissino, near Vicenza (18th century).





A. Sangallo il Giovane and Michelangelo: Palazzo Farnese, Rome (1514-47).

Plate 2. Surface and volume as represented in photographs



Le Corbusier and P. Jéanneret: Villa, Garches (1927).

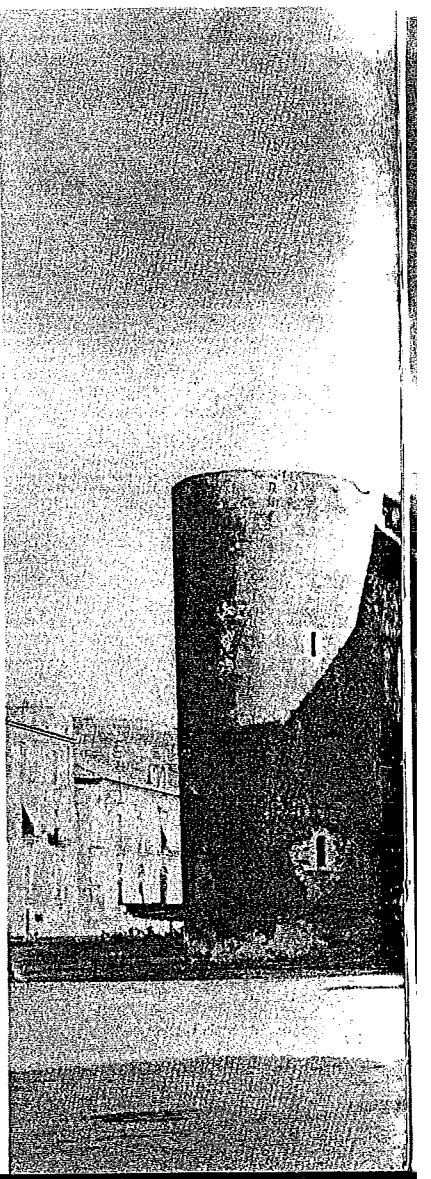


Plate 2. Surface and volume as represented in photographs

Castle Ursino, Catania (13th century).

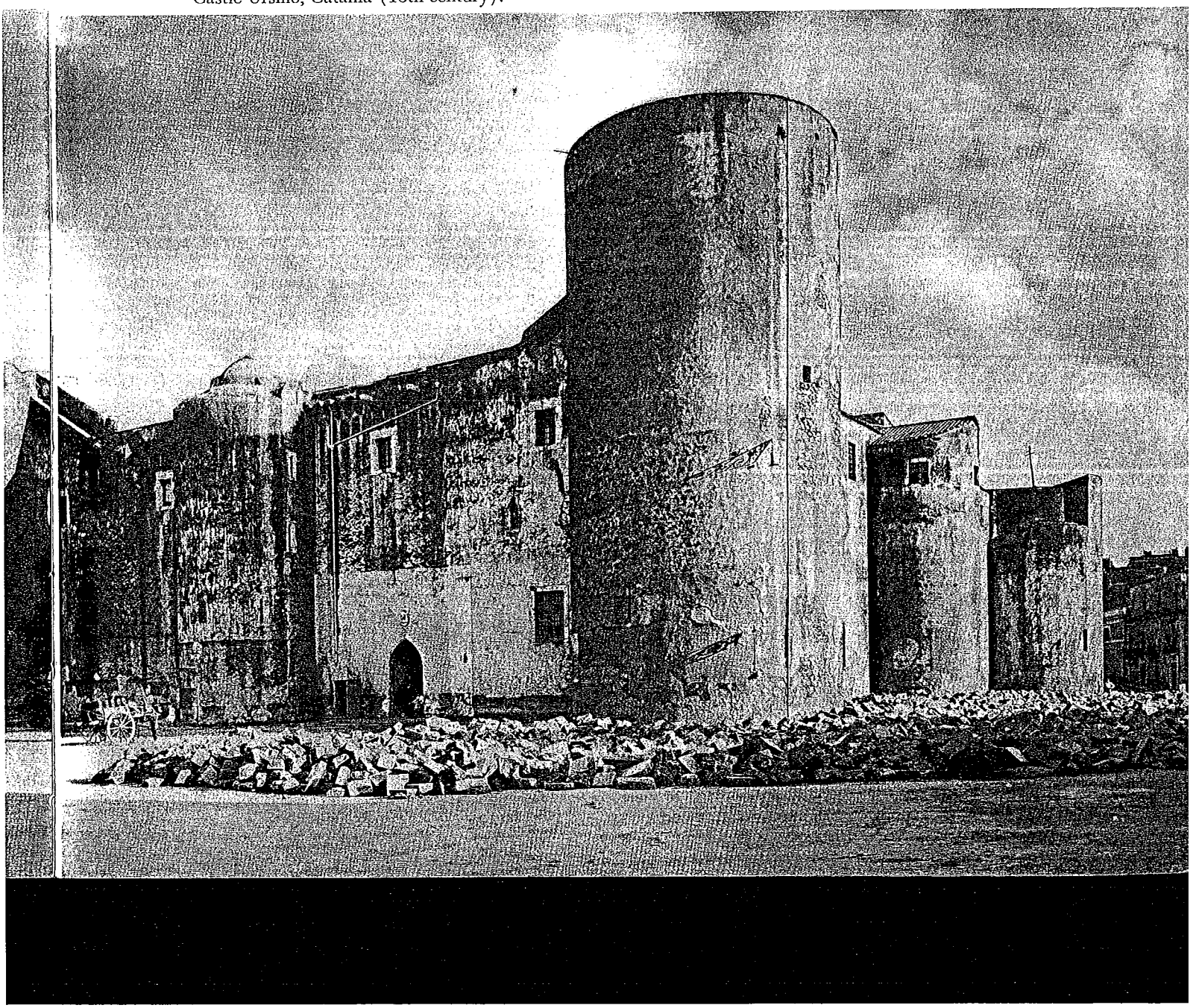
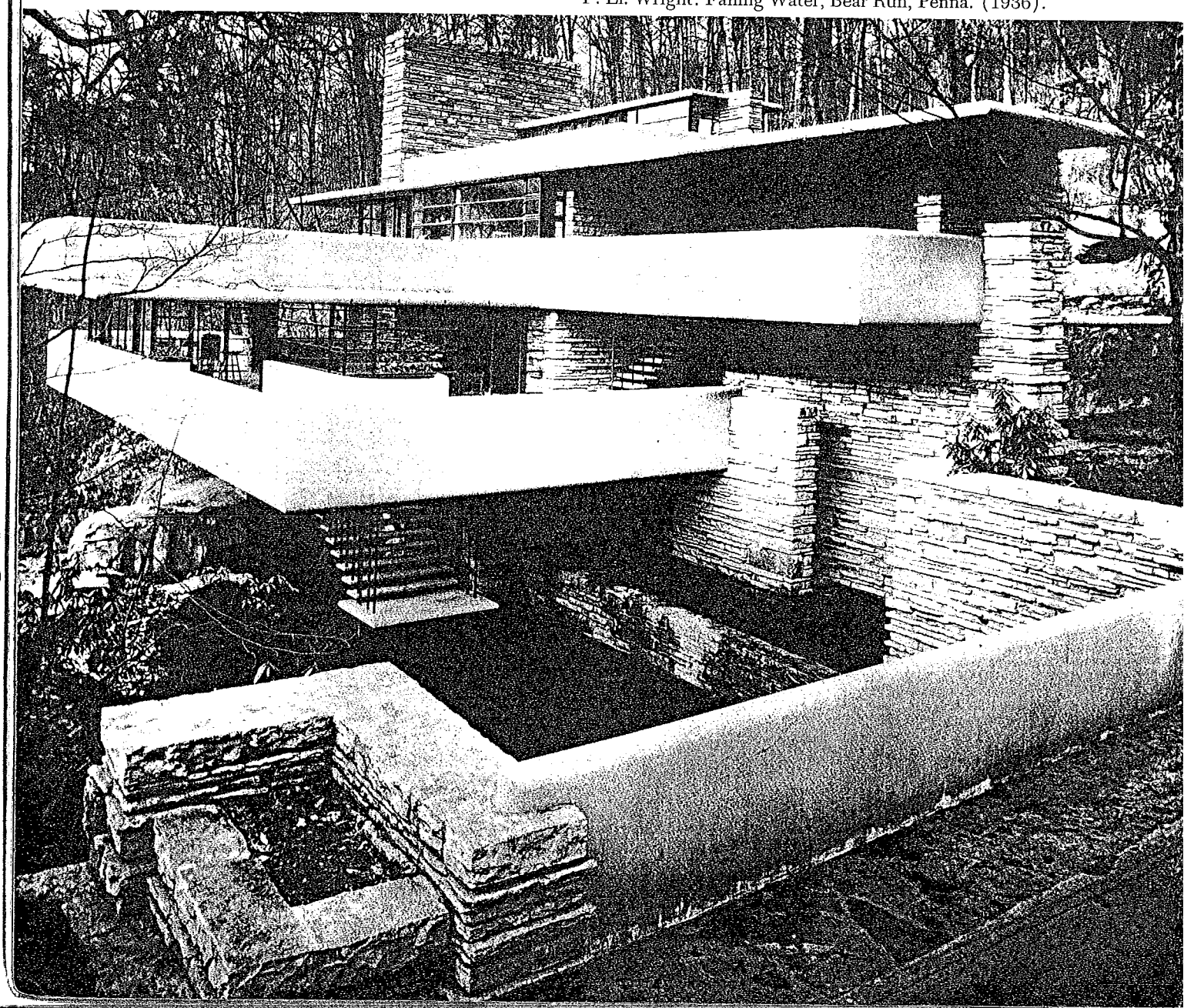
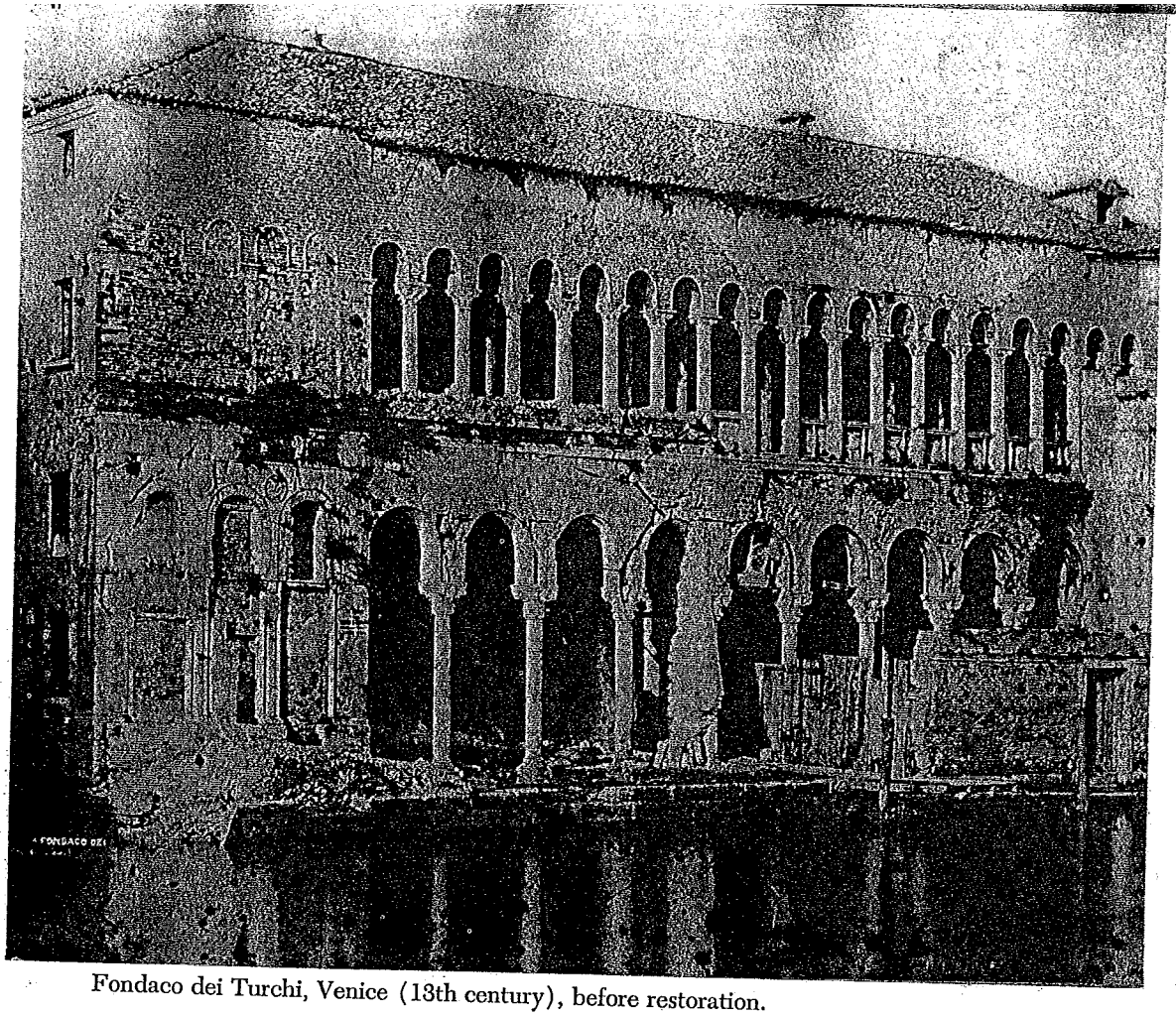


Plate 2. Surface and volume as represented in photographs

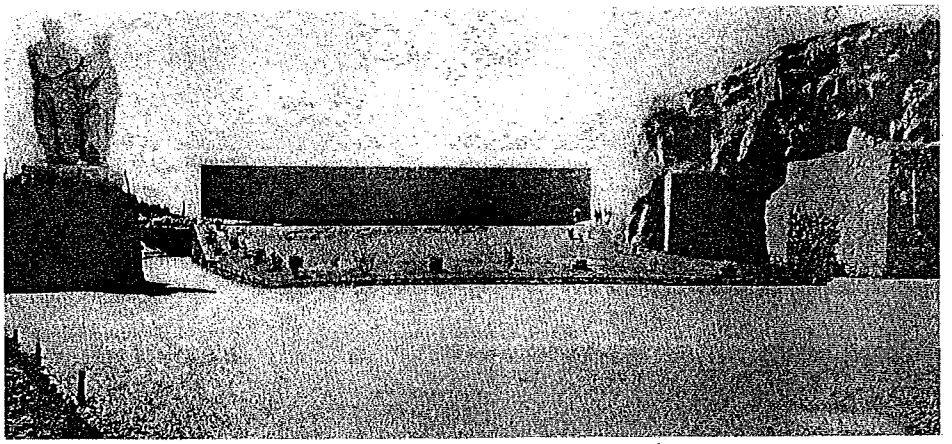
F. Ll. Wright: Falling Water, Bear Run, Penna. (1936).





Fondaco dei Turchi, Venice (13th century), before restoration.

Plate 2. Surface and volume as represented in photographs



Nello Aprile, Cino Calcaprina, Aldo Cardelli, Mario Fiorentino, Giuseppe Perugini: Monument at the Cave Ardeatine, Rome (1945).

Michelangelo: Piazza del Campidoglio, Rome (1546-47).

Plate 2. Surface and volume as represented in photographs

III THE REPRESENTATION OF SPACE

ONE DAY, sometime in the 1430's, Johann Gutenberg of Mainz conceived the idea of engraving the letters of the alphabet on little pieces of wood and of putting them together to form words, lines, phrases, pages. He invented printing and so opened up to the masses the world of poetry and literature, until then the property and instrument of a restricted class of intellectuals.

In 1839, Daguerre applied his knowledge of photo-chemistry to the problem of reproducing images of an object. He invented photography and marked the passage from the aristocratic to the collective plane of a vast amount of visual experience hitherto available only to the few who could afford to employ an artist to paint their portraits or who could travel to study works of painting and sculpture.

In 1877, Edison invented a cylindrical apparatus and succeeded for the first time in recording sound on a sheet of tin-foil. Forty-three years later, in 1920, the first radio broadcast took place. The art of music, previously at the exclusive command of limited groups of connoisseurs, was by means of the phonograph and the radio made accessible to the great public.

Thus, a continuous scientific and technological progress made possible the large-scale diffusion of poetry and literature, painting, sculpture and music, enriching the spiritual heritage of an ever increasing number of people. Just as the reproduction of sound has by now almost reached perfection, so the progress of color photography indicates that the next few years will show a distinct elevation of general education in chromatic values, a phase of visual experience in which the average level of understanding is still much lower than it is with regard to drawing and composition.

Architecture, however, remains isolated and alone. The problem of how to represent space, far from being solved, has not as yet been

even stated. Since up to now there has been no clear conception or definition of the nature and consistency of architectural space, the need for its representation and mass diffusion has consequently not been felt. This is one more reason for the inadequacy of architectural education.

As we have seen, the methods of representing buildings most frequently employed in histories of art and architecture consist of (1) plans, (2) façades and elevations and (3) photographs. We have already stated that neither singly nor together can these means ever provide a complete representation of architectural space. But, in the absence of thoroughly satisfactory methods, it becomes our concern to study the techniques we have at hand and to make them more effective than ever. Let us discuss them in detail and at length:

1) *Plans.* We have said that a plan is an abstraction entirely removed from any real experience of a building. Nevertheless, a plan is still the sole way we have of evaluating the architectural organism as a whole. And every architect knows that the plan, however insufficient in itself, has a distinct primacy in determining the artistic worth of a building. Le Corbusier, speaking of the "plan générateur," does nothing to advance the understanding of architecture; quite the contrary, he is engendering in his followers a sort of mystique of the "esthetic of the plan," scarcely less formalistic than that of the Beaux Arts. However, his concept is based on fact. The plan is still among the basic tools in the representation of architecture. The question is how to go about improving it.

Let us take, for example, Michelangelo's planimetric design for St. Peter's in Rome. Many books reprint Bonanni's plan (fig. 1), partly because of a snobbish vogue for old prints and drawings (a vogue which plays no small part, particularly in the history of city planning, in increasing the general confusion) and partly because the authors of the books do not bother to investigate the problems involved in the representation of architecture. Yet no one after some thought can say that Bonanni's plan is the most satisfactory representation of Michelangelo's spatial conception for the young man who is beginning his study of architecture or for the general reader who is naturally asking the critic and historian to help him understand architectural values.

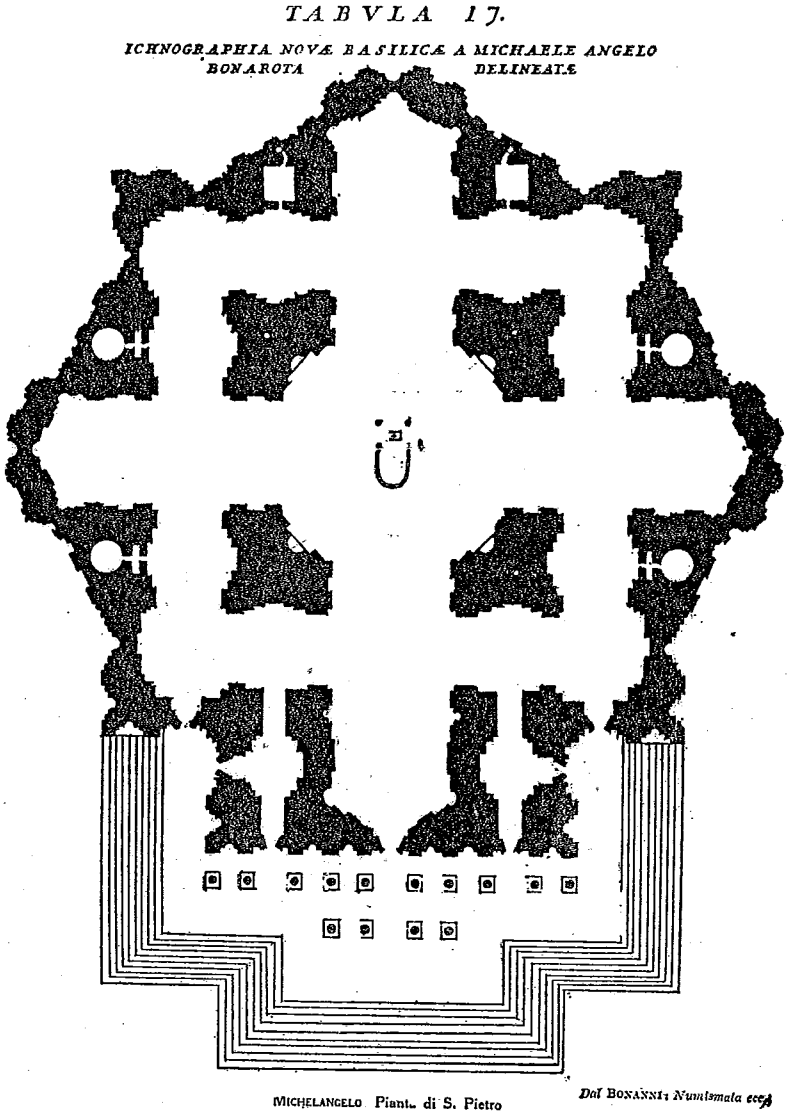


Fig. 1. Michelangelo: Design for St. Peter's, Rome (ca. 1520). Plan (by Bonanni).

To begin with, this plan shows an abundance of details, a minute marking of every pilaster and every curve, all of which may be useful in a later stage of the critical commentary (when it becomes our concern to ascertain whether the spatial theme is given a consistent elaboration in the decoration and plastic treatment of the walls), but which

is confusing, at this point, when all our efforts should be directed toward illustrating the spatial basis of the architectural work.

A professor of Italian literature does not give his students a complete, unannotated text of the *Divine Comedy,* saying, "Here is the masterpiece—read and admire it." There is first a long phase of preparatory work—we learn about Dante's subject matter from the summaries in our school texts on literature—we accustom ourselves to the language of the period and poet through selections in anthologies. Literary pedagogues devote a considerable part of their labors to simplifying the material, whereas the analogous problem is for the most part ignored by pedagogues writing on architecture for the general public. To be sure, it is unnecessary to summarize a sonnet from the *Vita Nuova,* or any brief poetic fragment; similarly, a small villa or country house can readily be understood without a simplified plan. Michelangelo's St. Peter's, however, is a work no less complex than the *Divine Comedy,* and it is difficult to understand why it should take three years of study to analyze and enjoy Dante's epic, when St. Peter's is disposed of in a hasty reference in the course of a lesson on High Renaissance architecture. The gross lack of proportion between the time spent on literature and the time devoted to the explanation of architecture has no justification in criticism (it takes longer to understand Borromini's S. Ivo alla Sapienza than Victor Hugo's *Les Misérables*) and has ultimately resulted in our general lack of spatial education.

Before the performance of a tragedy, the Greeks listened to its plot summarized in a prologue and so could follow the dénouement of the play without that element of curiosity which is alien to contemplative serenity and esthetic judgment. Moreover, possessing the theme and substance of the play, they were better able to admire its artistic realization, the value of every detail and modification. In architectural education some method of graphic summary is undeniably necessary, even if limited to the technique of representation offered by the plan. The whole, after all, precedes its dissection, structure comes before finishing touches, space before decoration. To aid the layman in understanding a plan by Michelangelo, the process of criticism must follow the same direction as Michelangelo's own creative process. Figure 2 shows a

summarized version of the plan in figure 1 according to one interpretation (any summary implies an interpretation). Although a hundred better versions might be drawn, what matters is that every historian of architecture should consider it his duty to work out this norm of instructive simplification.

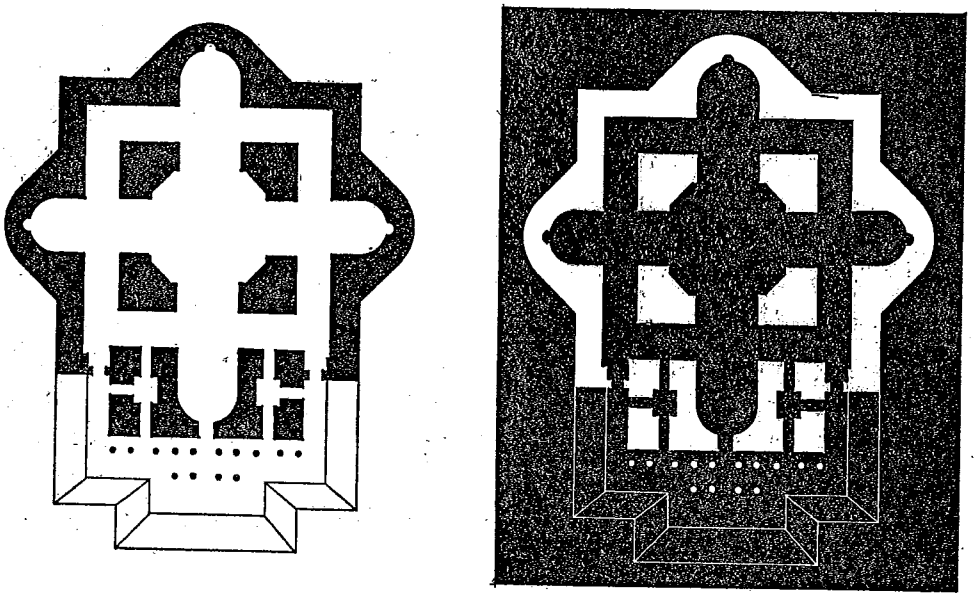
We now come to a far more significant matter. The walls, shown in black on the plan, separate the exterior or urbanistic space from the interior or properly architectural space. Every building, in fact, breaks the continuity of space, sharply divides it in such a way that a man on the inside of the box formed by the walls cannot see what is outside, and *vice versa.* Therefore, every building limits the freedom of the observer's view of space. However, the essence of architecture and thus the element which should be underlined in presenting the plan of a building, does not lie in the material limitation placed on spatial freedom, but in the way space is organized into meaningful form through this process of limitation. Figure 2, no less than figure 1, emphasized the structural mass, that is, the limits themselves, the obstructions which determine the perimeter of possible vision, rather than the "void" in which this vision is given play and in which the essential value of Michelangelo's creation is expressed. Since black attracts the eye more readily than white, these two planimetric representations (figures 2 and 3) may appear at first sight to be just the opposite, the photographic negative, so to speak, of an adequate representation of space.

Actually, this is a mistake. If we look at figure 3, we shall see that it is no improvement on figure 2; it is still the walls, the limits, the frame of the picture, not the picture itself, which are brought out. Why? For the simple reason that interior and exterior space are not distinguished from each other in the representation and no account is taken of the absolute and irreconcilable contradiction which exists between the two kinds of space. Being in a position to see the one means being unable to see the other.

By now the reader will have understood where we want to go. In figures 4 and 5 he will find two planimetric representations of Michelangelo's conception. Figure 4 gives the interior space at the spectator's level; it presents the space in terms of a man walking around inside the

building. Figure 5, on the other hand, shows the exterior space, which is defined by the outer walls of the basilica, and which, of course, means nothing in itself, since urbanistic space is not shaped around a single building, but is realized in the voids bounded by all elements, natural and constructed—trees, walls, and so forth—that surround them.

Figure 4, particularly in comparison with the characterlessness of figure 1, may strike us as interesting, but gives rise to the objection that in representing the entire *void* as one uniform black spot, it fails to give

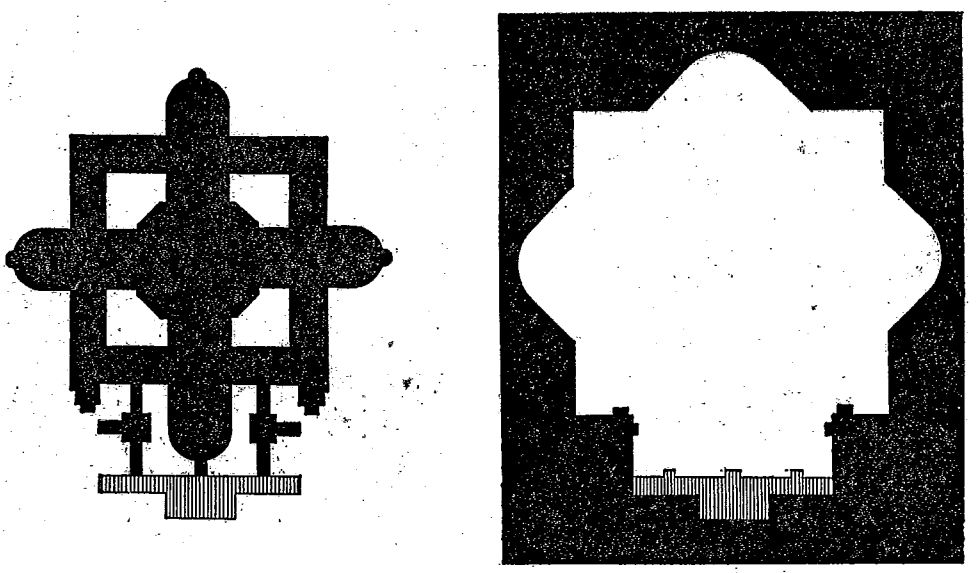


Figs. 2 and 3. Simplified version of the plan in fig. 1 and negative.

any idea of the hierarchy of heights within the space. Apart from the fact that it errs in including, though sketched in lightly, the space of the portico, which cannot be experienced simultaneously with that of the church, it does not separate the space determined by the central cupola, which is very high, from the spaces defined by the four small cupolas at the corners, and these, in turn, from the aisles and niches. Figure 4 would be acceptable if the basilica were all of uniform height, but since there are very marked differences in the heights of various parts of the church, and these are of decisive importance in the determination of spatial values, it follows that even in a plan some attempt

must be made to project the forms produced by these differences in height. Some books give figure 6, in which the fundamental structures articulating the organism of the church are shown schematically. This projection represents a step in the right direction with respect to figure 1, in spite of the fact that it retains all the defects we have pointed out as contained in figures 2 and 3.

It may also reasonably be objected that stating an antithesis between interior and exterior space, as illustrated in figures 4 and 5, is

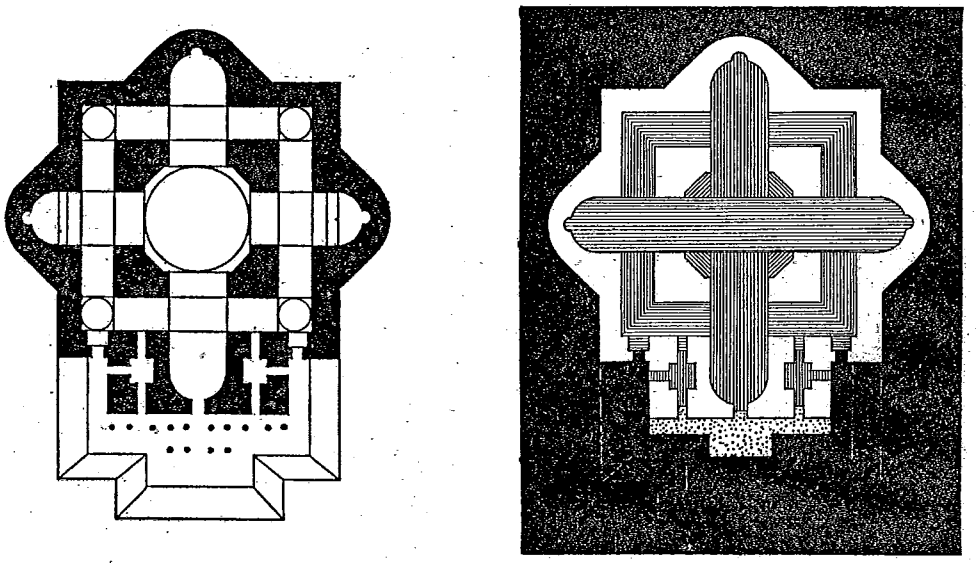


Figs. 4 and 5. The internal and external space of fig. 1.

somewhat arbitrary and polemic. Michelangelo did not first conceive the inside of the basilica, then the outside, separately. He created the whole organism simultaneously and if it is true that seeing the interior space of a building automatically means not seeing its exterior, it is also true that this gap is to a certain extent closed by the "fourth dimension" of time employed in seeing the edifice from successive points of view; the observer does not always remain on the inside or outside of a building, but walks from one to the other. In a building erected during different periods or by different architects, where one has created the interior and another the façades, the distinction and antithesis estab-

lished in figures 4 and 5 may be legitimate. But works of unitary conception are marked by a coherence, interdependence and, it might almost be said, an *identity* between interior space and volume; this latter, in turn, is a factor in urbanistic space. The two originate in one inspiration, one theme, one work of art.

With this we come to the heart of the problem of space and its planimetric representation. One author may consider that the most important element to be underlined is the cross-shape of St. Peter's

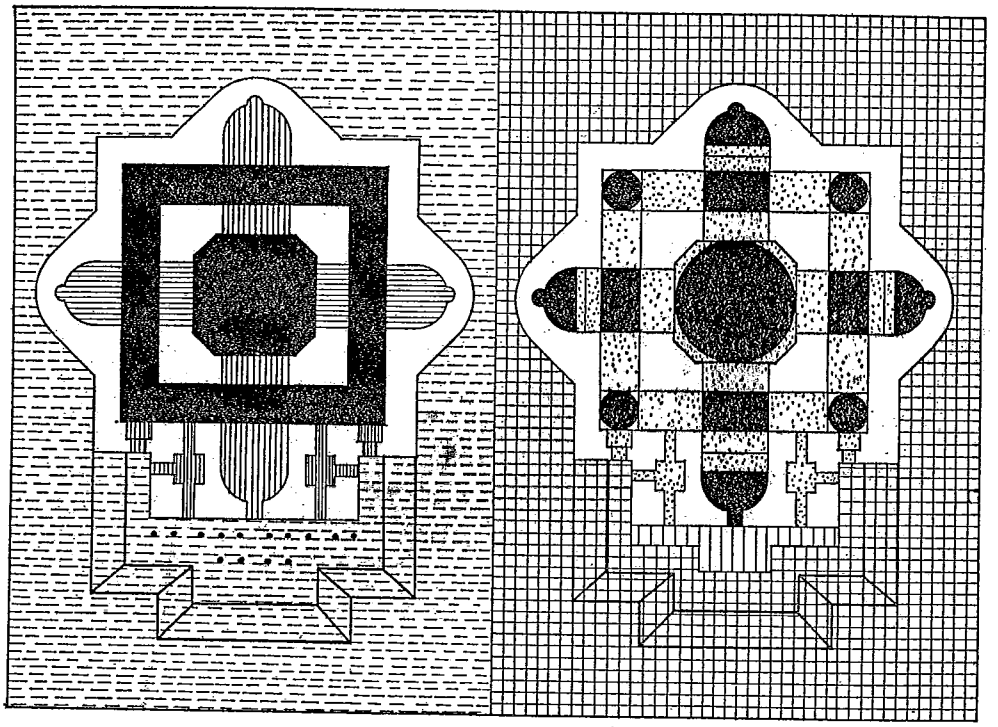


Figs. 6 and 7. The plan of fig. 1 as a projection of the fundamental structure and as a spatial interpretation.

and will draw a plan like figure 7. Another might see fit to underscore the architectural predominance of the central cupola and the square formed by the aisles, as in the interpretation of figure 8. A third might give greater importance to the four cupolas and the vaults, and will produce a plan such as in figure 9. Each of these interpretations expresses a real element in the space created by Michelangelo, but each is incomplete in itself. However, if our investigation of the problem of representing space is broadened along these lines, there is no doubt that although we may never succeed in discovering a method of fully rendering a conception of space in a plan, we shall nevertheless achieve

better results in teaching and learning how to understand space and how to look at architecture by analyzing and discussing the means we have than if we merely neglect the problems they offer and limit ourselves to reproducing figure 1.

2) *Façades.* The line of reasoning followed in our discussion of *plans* can be repeated in a simpler way when we deal with *elevations.* Here



Figs. 8 and 9. Two more spatial interpretations of Michelangelo's plan for St. Peter's.

the basic problem is to represent an object which has two, or at most three, dimensions. Skimming through books on architecture, you will find the graphic linear method very commonly used, as for example in Letarouilly's drawing of the façade of Palazzo Farnese (fig. 10) or in the sketched elevation of Frank Lloyd Wright's Falling Water (fig. 11). It would be difficult to conceive a representational method less thoughtful or less fruitful.

The problem of representing the façade of Palazzo Farnese involves

only two dimensions, as we are dealing with a wall surface. Therefore our only concern is how to render the voids and the different textures of the materials employed (plaster, stone, glass) and the degree to which they reflect light. In figure 10 the problem is completely ignored. No distinction is made in representing the various materials. A smooth wall, the space surrounding the building, and the window openings are all shown as if they were alike. Although in present-day discussions of architecture much emphasis is placed on the counterplay between

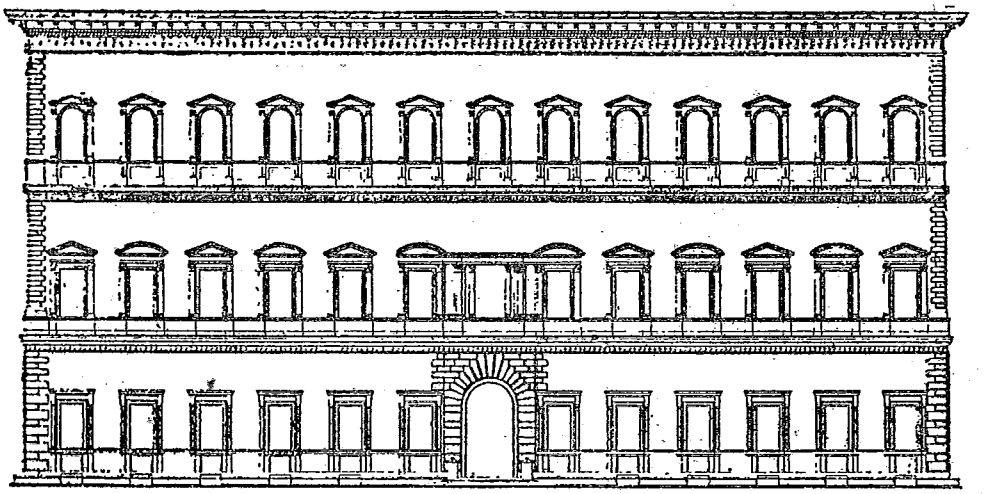


Fig. 10. A. da Sangallo and Michelangelo: Elevation of Palazzo Farnese, Rome (1515–30). Drawing by Letarouilly.

solids and voids, this kind of drawing is still pointed to as a model of clarity. We have rejected the 19th-century pictorial and scenic sketch of a building in the name of greater precision, but on the other hand we have lapsed into an abstract graphic style which is decidedly anti-architectural. In fact, as we are dealing here with a problem clearly sculptural in nature, a representation of this sort is equivalent to rendering a statue by drawing nothing but its outline on paper.

Figure 11 shows a building in which the structure, rather than being confined to a simple stereometric form, is developed with extraordinary organic richness in projections and returns, in planes suspended and intersecting in space. Here we see that the method of

representation in figure 11 is hopelessly inadequate to the subject. No layman, not even an architect, highly skilled in visualizing an architectural conception on the basis of its drawings, could ever gather from this design what Falling Water really looks like.

Reproducing the drawing of a façade in its photographic negative is of no more use than it was for us in the case of a plan. Figure 12, the negative of figure 10, has the same shortcomings as its positive. The solution must be something on the order of figure 13, in which the

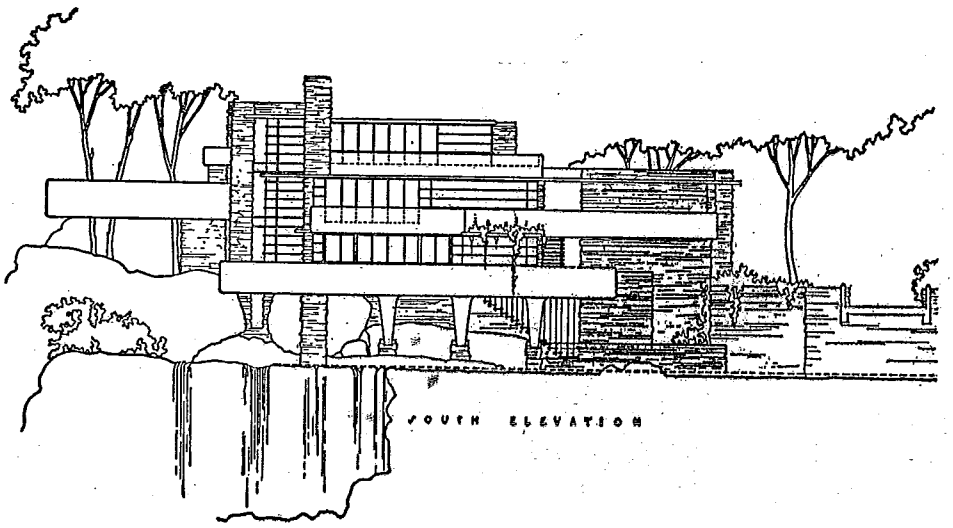


Fig. 11 F. Ll. Wright: Elevation of Falling Water, Bear Run, Penna. (1936).

material entity of the building is detached from the surrounding sky, the relatively transparent voids of the windows are distinguished from the opaque wall surfaces, and the various materials are distinguished from each other.

Nothing can be done, however, greatly to improve figure 11. It would be absurd to try to clarify the representation of Frank Lloyd Wright's volumetric play by adding light and shade. Figure 14, in which this has been done, is little more effective than figure 13. It is clear that this technique of representation is entirely incapable of rendering a complex architectural organism, whether it be the Cathedral of Durham, a church of Neumann or a building of Wright. The

method of representation must be substantially different. In each of these cases, the box formed by the walls cannot be divided into simple planes or walls independent of each other, because it is a projection of the internal space; the construction is conceived primarily in terms of volumetrics. We are dealing with plastic volumetric conceptions which can be represented only by models. The evolution of modern sculpture, of Constructivist, Neo-Plastic and to some extent Futurist experiments, and of research in the simultaneity, juxtaposition and

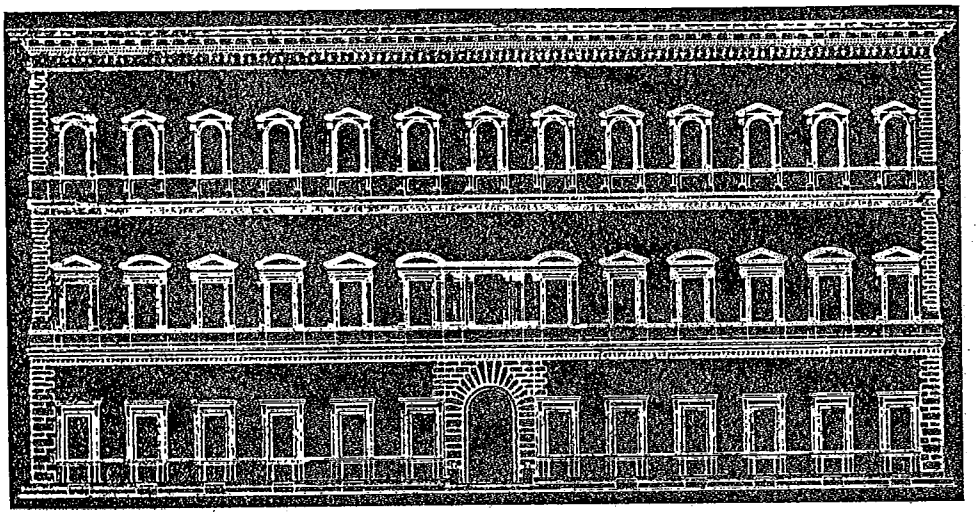


Fig. 12. Negative of fig. 10.

interpenetration of volumes, all provide us with the instruments necessary for this type of representation.

On the other hand, we cannot say that models are completely satisfactory. They are very useful and ought to be used extensively in teaching architecture. However they are inadequate, because they neglect an element crucial to any spatial conception: *the human parameter*—interior and exterior human scale.

For models to be perfect, we should have to suppose that the value of an architectural composition depended entirely on the relations existing between its various components, without reference to the spectator; that, for example, if a palace is beautiful, its elements can be repro-

duced exactly in their original proportions, reduced, however, to the scale of a piece of furniture, a beautiful piece of furniture, at that.

This is patently mistaken. The character of any architectural work is determined both in its internal space and in its external volume by the fundamental factor of *scale*, the relation between the dimensions of a building and the dimensions of man. Every building is qualified by its scale. Therefore, not only are three-dimensional models inadequate in representing a building, but any imitation, any transference, of its

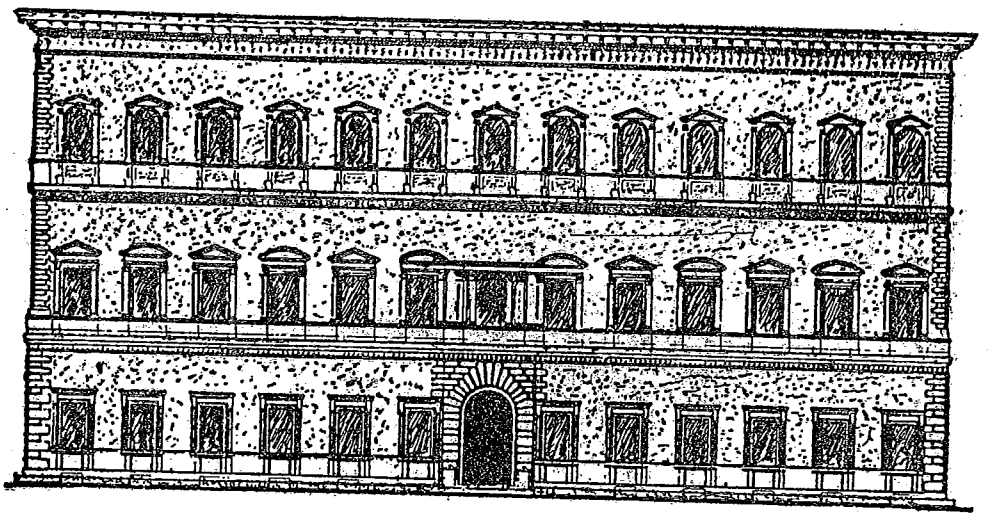


Fig. 13. An interpretation of fig. 10.

decorative and compositional schemes to organically different structures (we have all of 19th-century eclecticism to prove it) turns out to be poor and empty, a sorry parody of the original.

3) *Photographs.* As photography to a large extent solves the problem of representing on a flat surface the two dimensions of painting and the three dimensions of sculpture, so it faithfully reproduces the great number of two- and three-dimensional elements in architecture, *everything*, that is, *but internal space*. The views, for example, in plate 2 give us an effective idea of the wall surface of Palazzo Farnese and the volumetric values of Falling Water.

But if, as we hope to have made clear by now, the characteristic

value of an architectural work consists in our experiencing its internal space from successive points of view, it is evident that no number of photographs can ever constitute a complete pictorial rendition of a building, for the same reason that no number of drawings could do so. A photograph records a building *statically*, as seen from a single standpoint, and excludes the dynamic, almost musical, succession of points of view movingly experienced by the observer as he walks in and around a building. Each photograph is like a single phrase taken out of

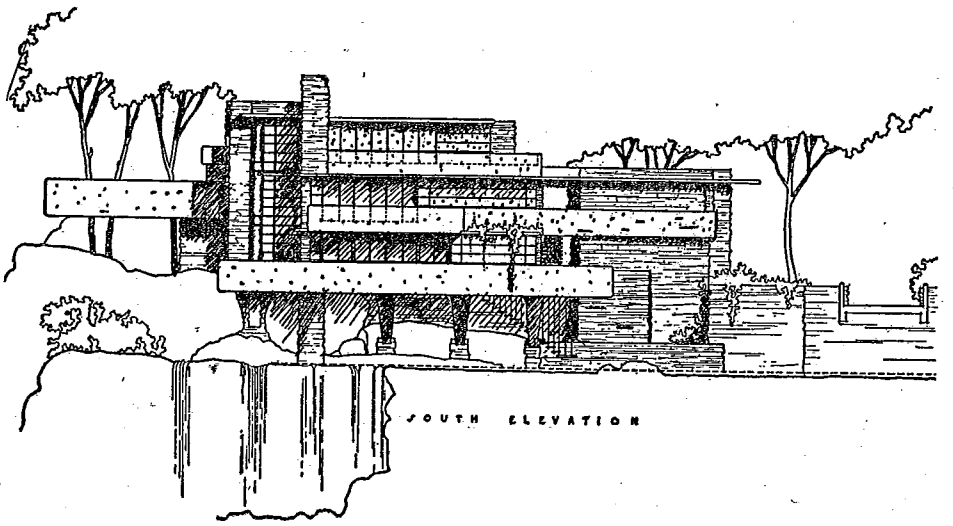


Fig. 14. An interpretation of fig. 11.

the context of a symphony or of a poem, a single frozen gesture of an intricate ballet, where the essential value must be sought in the movement and totality of the work. Whatever the number of still photographs, there is no sense of dynamic motion. (See plates 3 and 4.)

Photographs, of course, have a great advantage over three-dimensional models of conveying some idea of scale, particularly when a human figure is included, but suffer from the disadvantage, even in the case of aerial views, of being unable to give a complete picture of a building.

The researches of Edison and the Lumière brothers in the 1890's led to the invention of a camera geared to carry film forward continu-

ously, so that a series of exposures could be taken in rapid succession, making it possible for photography to render an illusion of motion. This discovery of the motion picture was of enormous importance in the representation of architectonic space, because properly applied it resolves, in a practical way, almost all the problems posed by the fourth dimension. If you go through a building photographing it with a motion picture camera and then project your film, you will be able to recapture, to a large extent, the spatial experience of walking through the building. Motion pictures are consequently taking their proper place in education and it seems likely that in teaching the history of architecture, the use of films, rather than of books, will greatly advance general spatial education.

Plans, façades, cross-sections, models, photographs and films—these are our means of representing space. Once we have grasped the basic nature of architecture, each of these methods may be explored, deepened and improved. Each has its own contribution; the shortcomings of one may be compensated for by the others.

If the Cubists had been correct in believing that architecture could be defined in terms of four dimensions, our means would be sufficient for a fairly complete representation of space. But architecture, as we have concluded, has more than just four dimensions. A film can represent one or two or three possible paths the observer may take through the space of a building, but space in actuality is grasped through an infinite number of paths. Moreover, it is one thing to be seated in a comfortable seat at the theater and watch actors performing; it is quite another to act for oneself on the stage of life. It is the same difference that exists between dancing and watching people dance, taking part in sport and merely being a spectator, between making love and reading love stories. There is a physical and dynamic element in grasping and evoking the fourth dimension through one's own movement through space. Not even motion pictures, so complete in other respects, possess that main spring of complete and voluntary participation, that consciousness of free movement, which we feel in the direct experience of space. Whenever a complete experience of space is to be realized, *we* must be included, *we* must feel ourselves part and measure of the archi-

tectural organism, be it an Early Christian basilica, Brunelleschi's Santo Spirito, a colonnade by Bernini or the storied stones of a medieval street. We must *ourselves* experience the sensation of standing among the *pilotis* of a Le Corbusier house, of following one of the several axes of the polyform Piazza del Quirinale, of being suspended in air on a terrace designed by Wright or of responding to the thousand visual echoes in a Borromini church.

All the techniques of representation and all the paths to architecture which do not include direct experience are pedagogically useful, of practical necessity and intellectually fruitful; but their function is no more than allusive and preparatory to that moment in which we, with everything in us that is physical and spiritual and, above all, human, enter and experience the spaces we have been studying. That is the moment of architecture.

F. Ll. Wright: Administration Building, S. C. Johnson & Son, Inc., Racine, Wis. (1936-39).

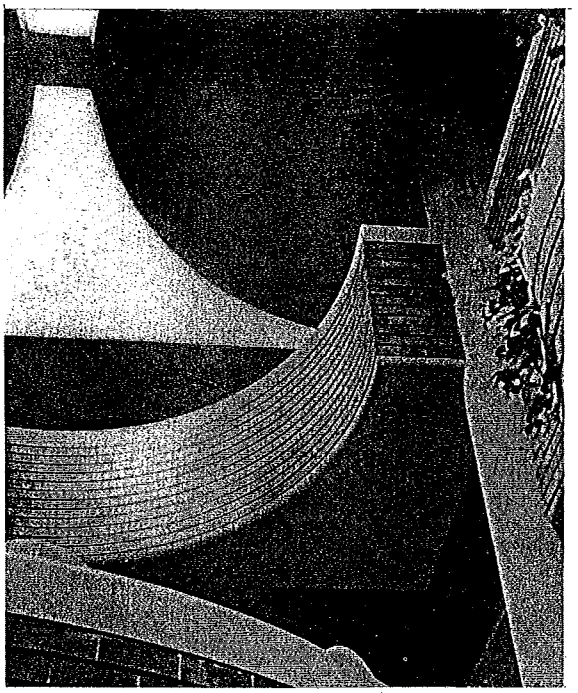
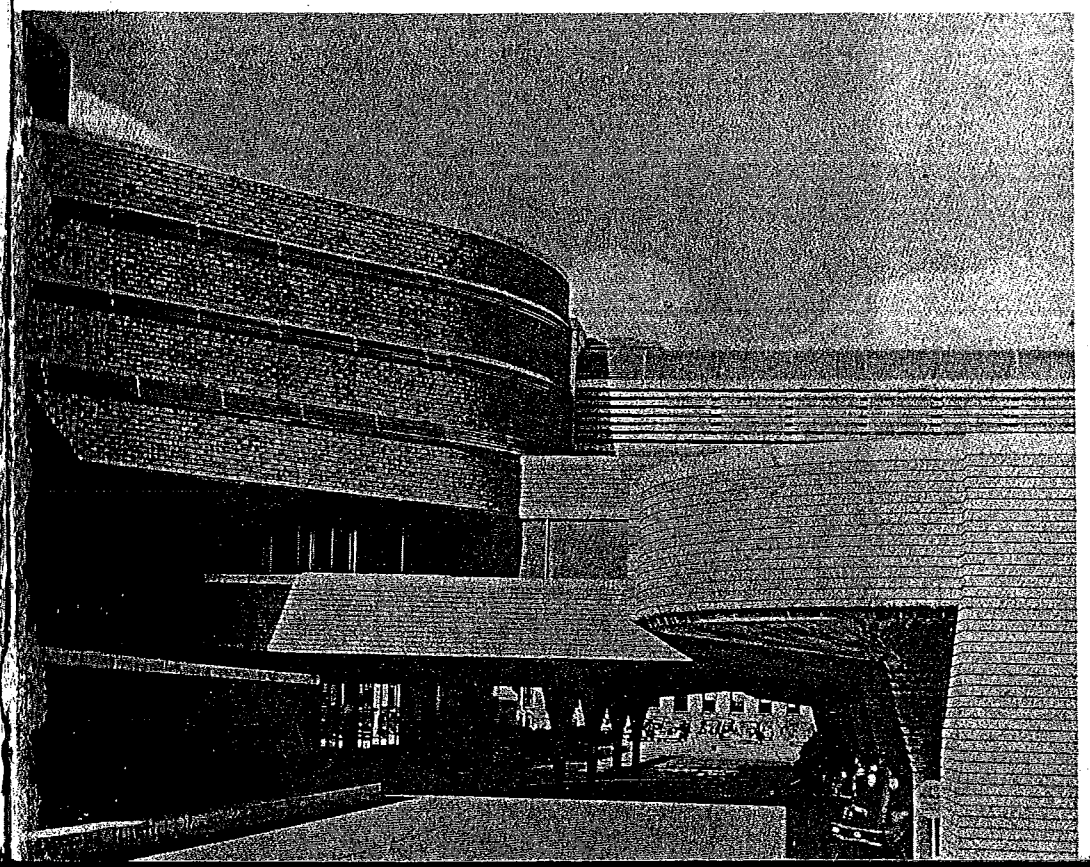
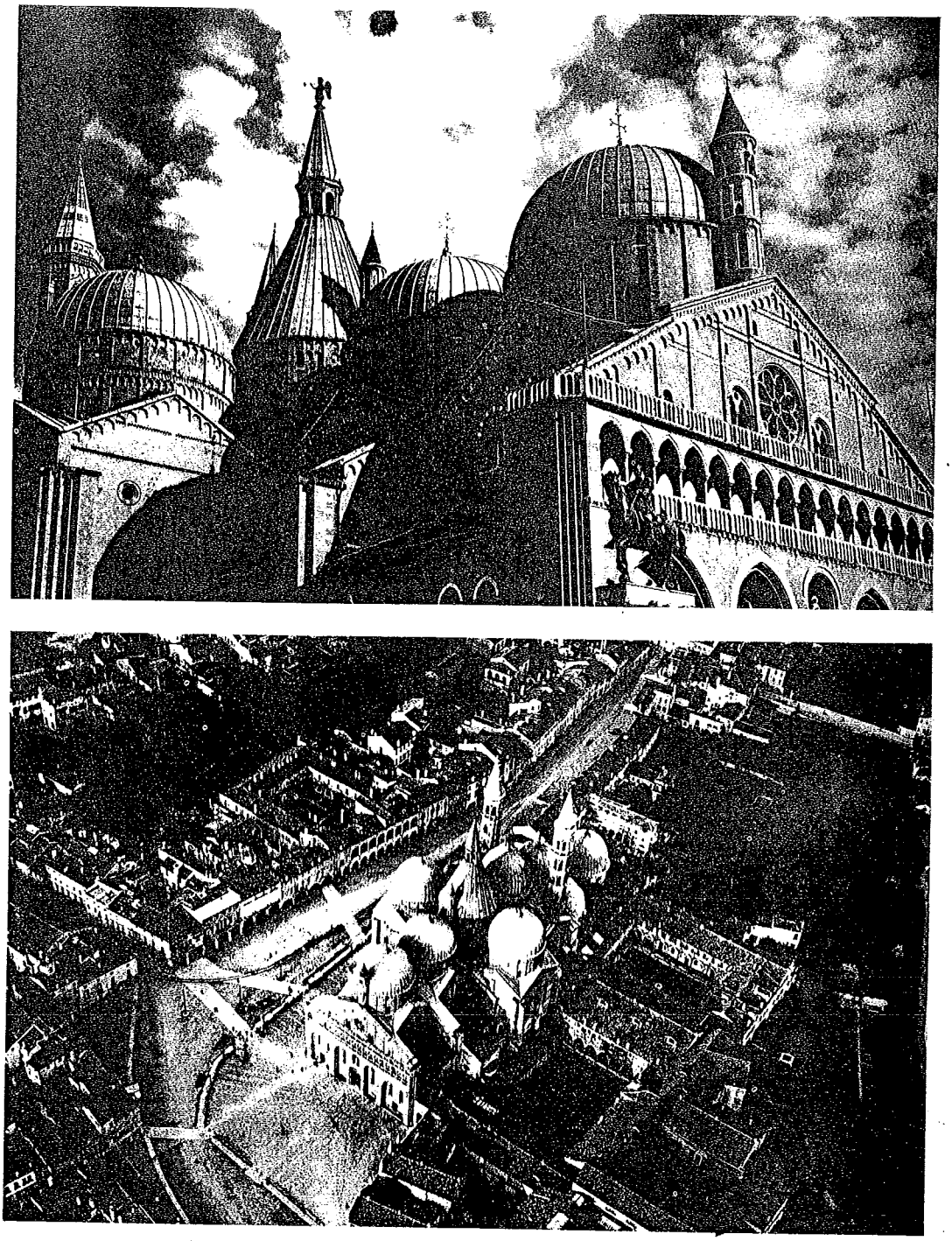


Plate 3. Interplay of volumes as represented in photographs

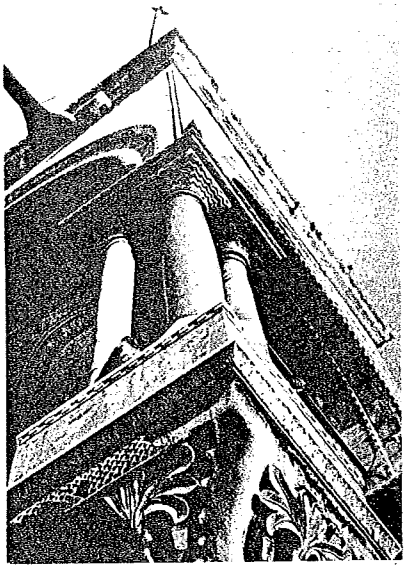


F. Ll. Wright: Administration Building, S. C. Johnson & Son, Inc., Racine, Wis. (1936-39).



Sant'Antonio, Padua (13th-14th century).

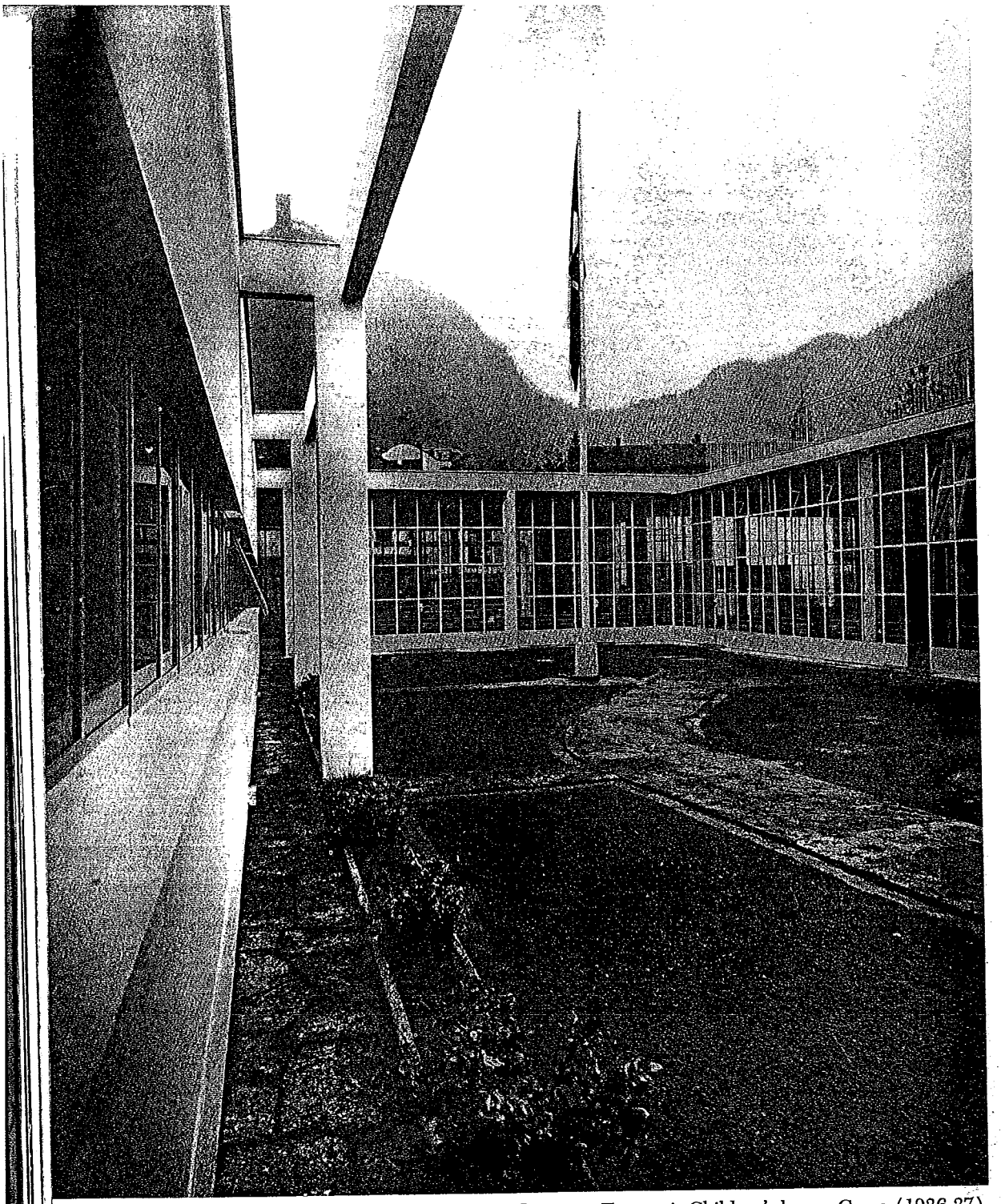
Plate 3. Interplay of volumes as represented in photographs



St. Mark's, Venice (10th-14th century). Detail.

Plate 3. Interplay of volumes as represented in photographs

St. Mark's, Venice (10th-14th century).



Giuseppe Terragni: Children's home, Como (1936-37).

Plate 3. Interplay of volumes as represented in photographs

F. Ll. Wright: Administration Building, S. C. Johnson & Son, Inc., Racine, Wis. (1936-39). Detail.

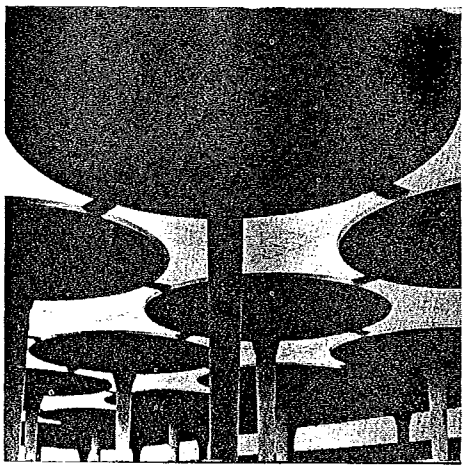


Plate 4. Internal space as represented in photographs

F. Ll. Wright: Administration Building, S. C. Johnson & Son, Inc., Racine, Wis. (1936-39).

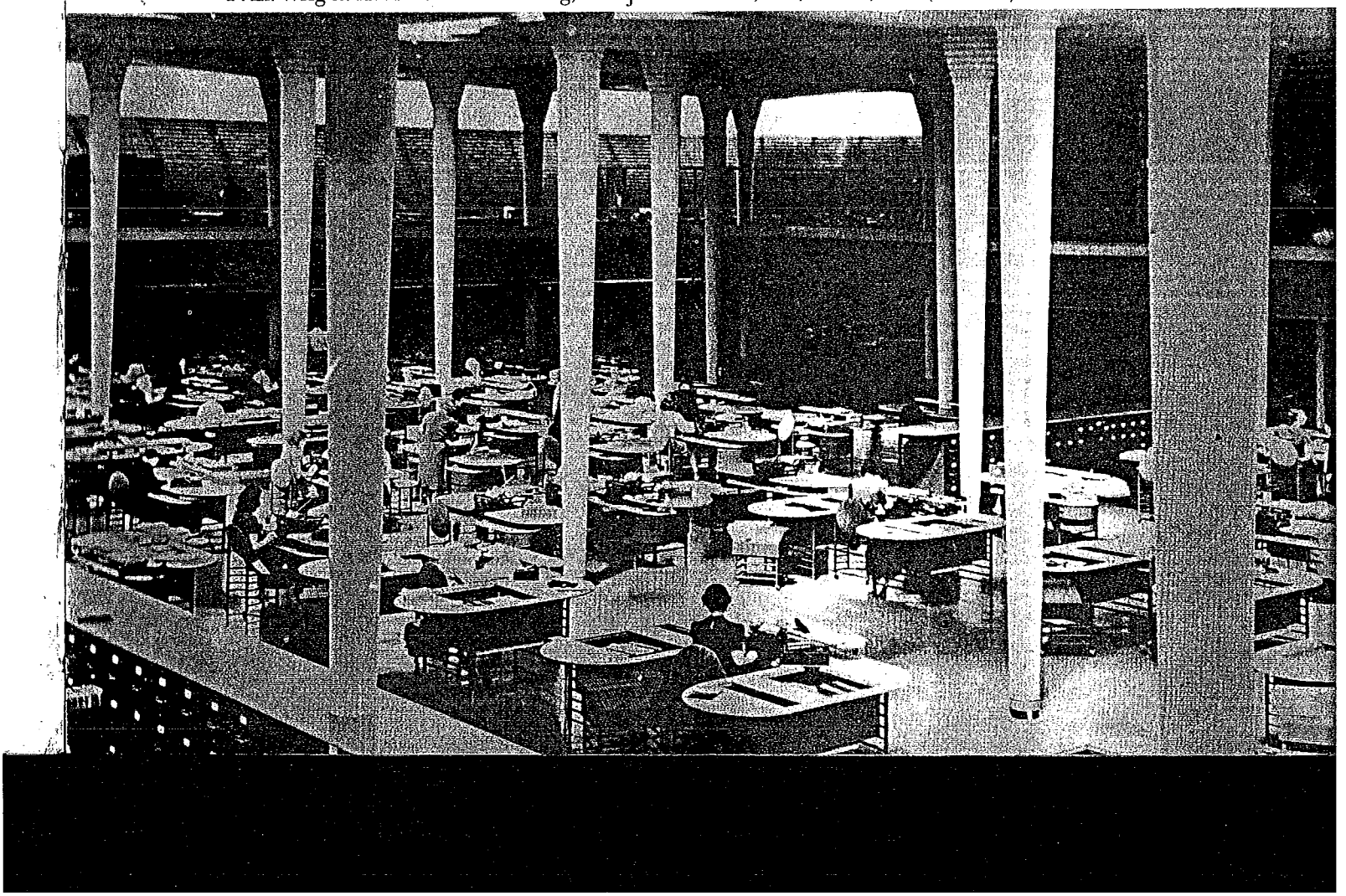
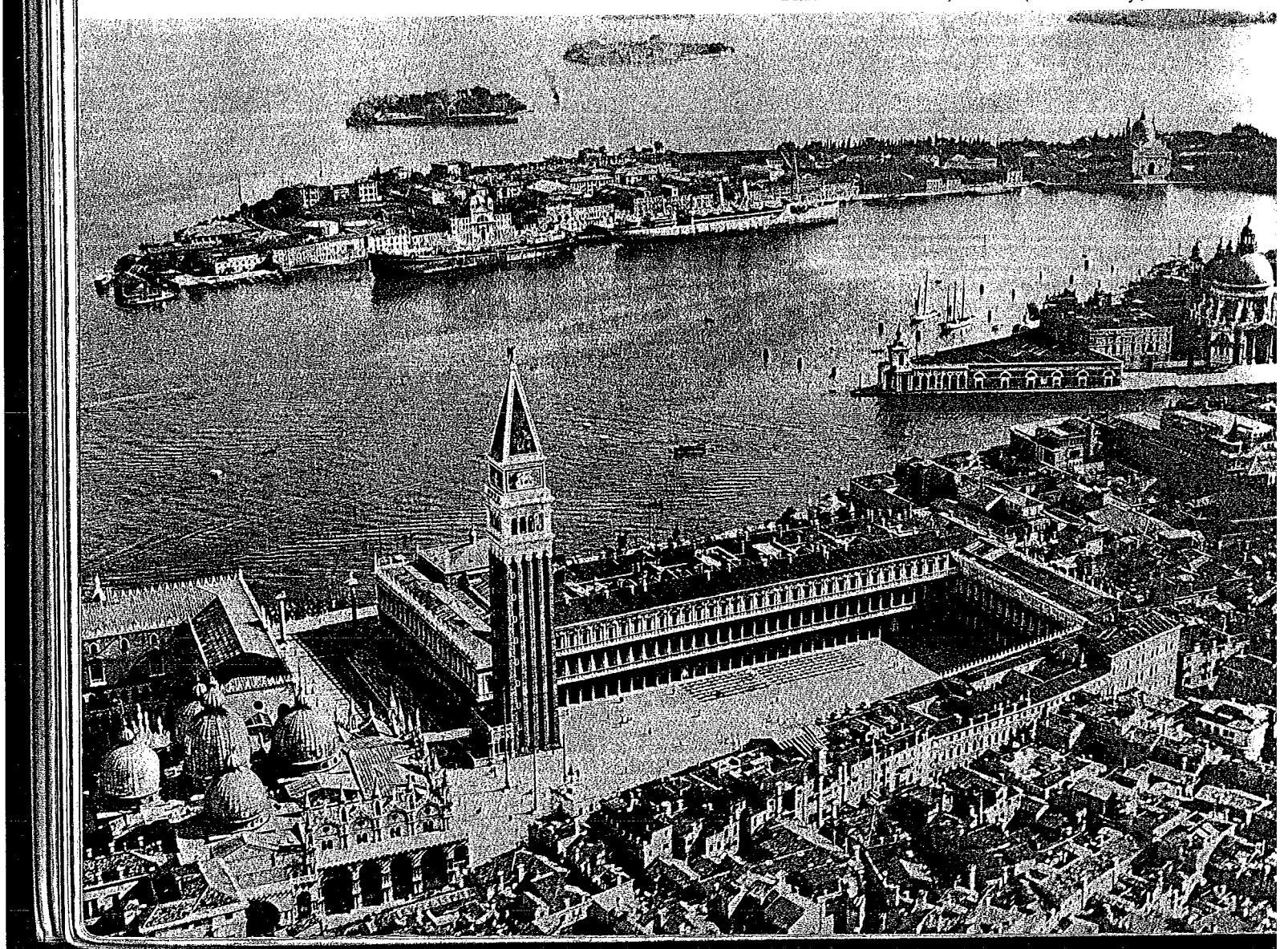
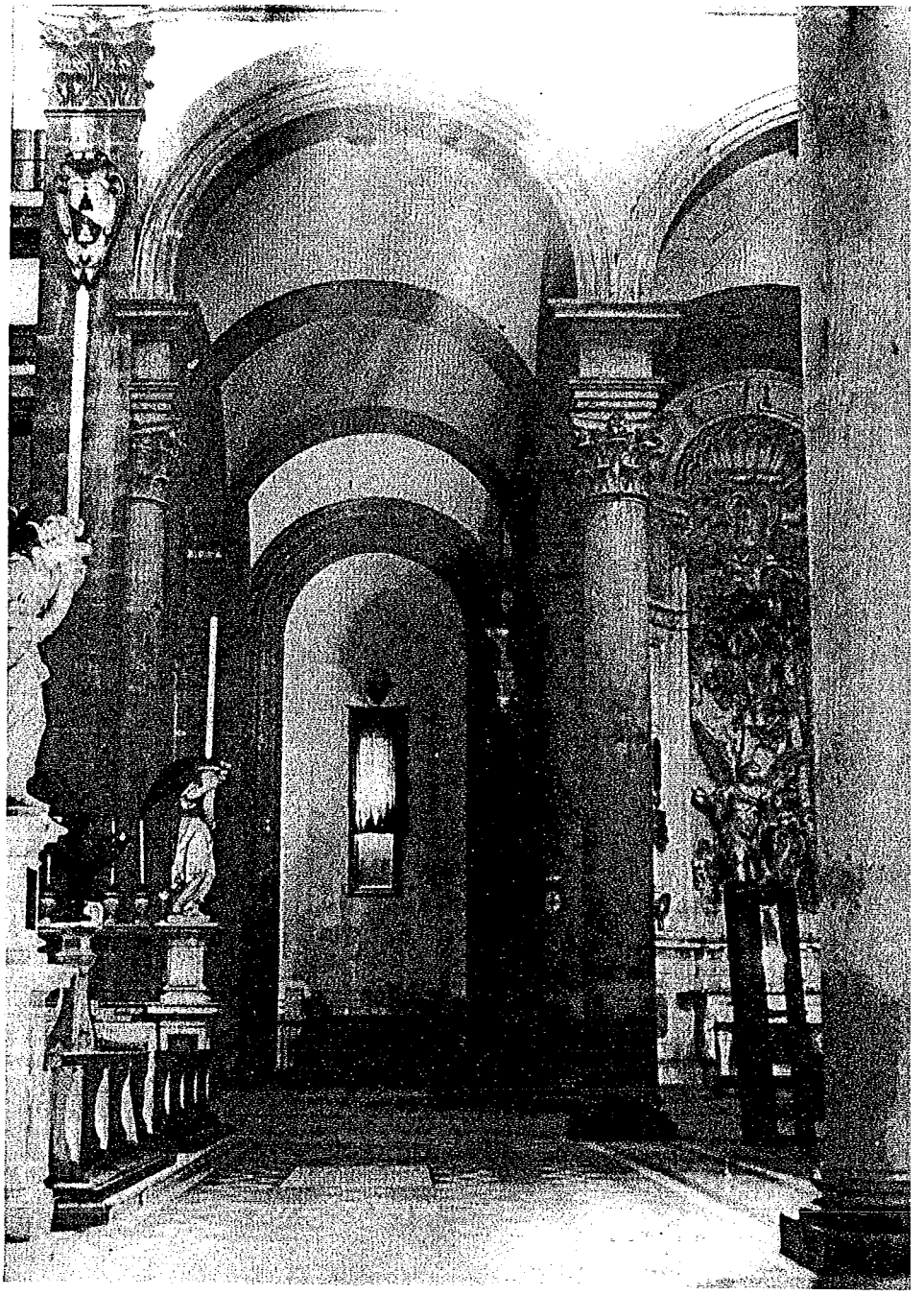


Plate 4. Internal space as represented in photographs

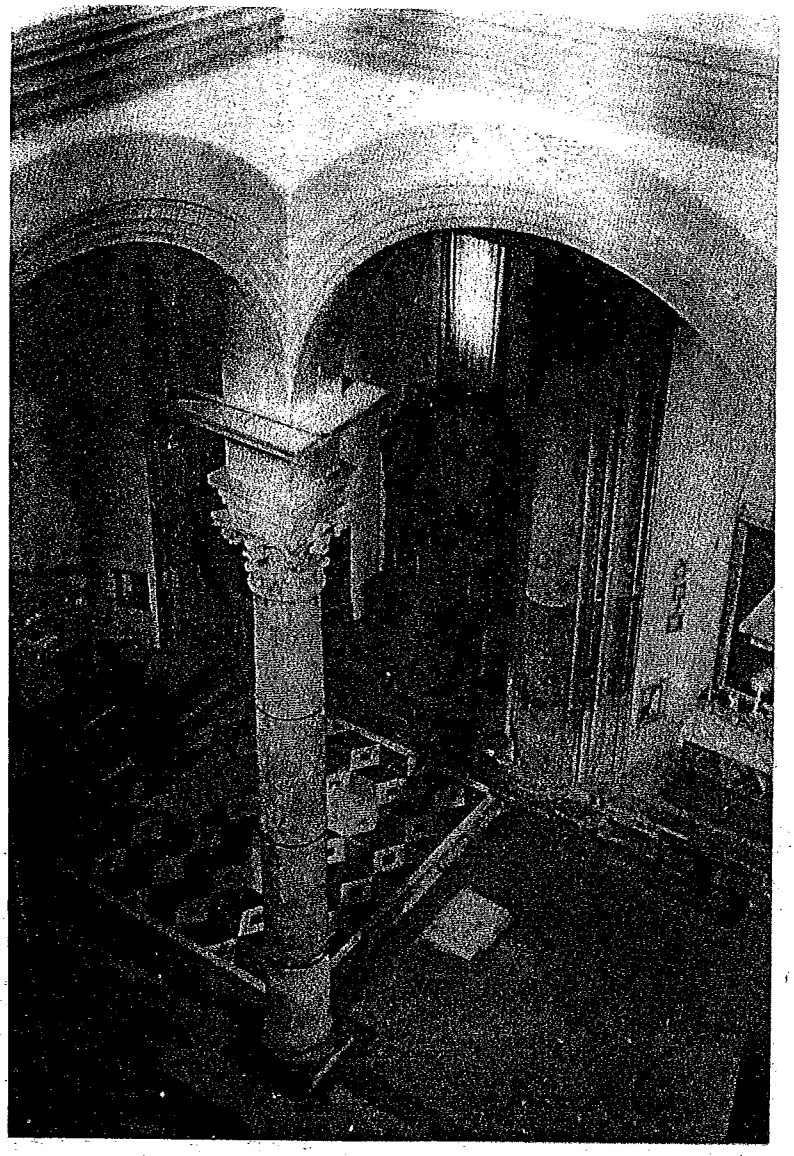
Piazza of St. Mark's, Venice (15th century).

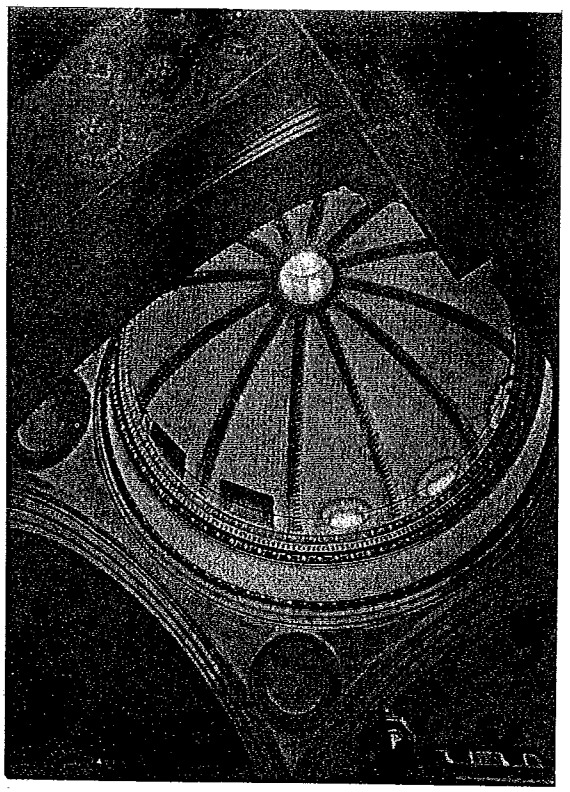




F. Brunelleschi: Santo Spirito, Florence (begun 1444). Interior. See also pl. 11.

Plate 4. Internal space as represented in photographs





F. Brunelleschi: Santo Spirito, Florence (begun 1444). Interior. See also pl. 11.

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