Plan au rez de chaussée d'une Maison à bâtir à Paris sur les desseins de Mr Mansard premier Architecte et Surintendant des Batimts du Roy

ON THEORY

OECODOMICS

Perhaps it is the almost total irrelevance of architectural theory to architectural practice that drives historians of the Modern Movement to despair, cynicism or—worst of all—eighteenth-century studies.

With this sentence, Reyner Banham began his review of Renato de Fusco's *L'Idea di Architettura* in the AR, July 1966. In its context, it was simply a witty paradox introducing some pointed comments about Ruskin, Croce, etc.; but isolated from its context, it distends to constitute an ominously disquieting apophthegm. For if, in fact, architectural theory is considered among the intelligentsia to have "almost total irrelevance to architectural practice," either the word "theory" is being used merely as an existentialist gibe, or else Dr. Banham's definition of "theory of architecture" needs a radical overhaul.

His own first book, it will be remembered, was entitled *Theory and Design in the First Machine Age;* but curiously enough on the few occasions when the word "theory" occurs in the text, it occurs in conjunction with such adjectives as Cubist, Elementarist, Futurist, except of course in the first few pages, when he discusses Guadet. In other words, though the title might lead one to think that Dr. Banham is concerned with theorists of *architecture,* he is only in fact concerned with what he calls on page 66: "theorists of Abstract art." Now if the purpose of his book was to demonstrate that the architectural ideals most vociferously enunciated during the First Machine Age were in fact architecturally-irrelevant theories of painting, sculpture, literature and music, his argument is, in my opinion, brilliantly conclusive. But if this was not his purpose, it would be fallacious to deduce from his evidence that "architectural theory" was, is, and always will be, eye-wash.

Before going any further, I suppose I must stick my neck out and say what I personally think the term "architectural theory" did, and always should, mean. This is embarassing, not because I have any doubts on the matter, but because "Vitruvius go Home" was the most inspired lecture-title Dr. Banham ever devised. However, since Vitruvius, whether we like it or not, supplied the most enduring definiton of architectural theory so far published, it will not be amiss to begin with his definiton of *Ratiocinatio:* [2] "Theory is that which is able to explain and analyse material constructions by the ex-

ercise of skill and reason." In other words, theory for him, as for me, means the sum total of academic knowledge required to design a building, as opposed to the sum total of practical experience.

To avoid the opprobrium attached by Dr. Banham to "eighteenth-century studies," I will gloss over the fact that the traditional interpretation of "architectural theory" was first undermined in that era by the ruins of Athens (when J.D. Leroy divided his book into two parts so as to study the buildings (a) as related to "history" and (b) as related to "theory"), and simply assert that the subdivision of architectural studies into "theory" and "history" officially occurred in 1818. In that year, the French Government, when revising the Statutes of the Ecole des Beaux-Arts, created a *second* architectural professor; and in order to distinguish between the two, the first was called "the professor of theory" and the second "the professor of history."

This official distinction could not have occurred at a more opportune moment, since Historicism, in the form of archaeological Revivalism, had already eroded the traditional roots of architectural evolution beyond repair. Unfortunately, however, the schizophrenic system of teaching developed in Paris in the nineteenth century disregarded the distinction between history and theory, and as a result made the confusion worse. Successive professors of history, being practising architects, understandably tried to relate their courses to contemporary problems. But the professors of theory thought only of justifying the tectonic forms they favoured by triumphantly demonstrating their primeval origins. Indeed, one professor of theory, J. B. Lesueur, actually entitled his book: *The History and Theory of Architecture.*

Julien Guadet was problably the first professor of theory to attempt to find a way out of this dilemma. Appointed in 1894, at the age of sixty, his basic solution was certainly not ideal; but at least it was clear-cut, and developed with extraordinary lucidity. He took "theory" to mean the detailed study of *building-types* which the students would one day have to design for eventual clients; and as far as he was concerned, history could be taught in any way the archaeologists wished.

The conventional prohibition against criticizing (and hence mentioning) the works of living colleagues naturally inhibited him when dealing with the more immediate aspects of contemporary building-types; hence much of the informa-

tion he imparted was inherently obsolete, and would have remained so even if steel and reinforced-concrete construction had not just then been invented. But when all his difficulties are taken into consideration, his attitude must command our respect, since he was more concerned than any of his predecessors with giving students solid notions on which they could develop and assess *future* designs. Perhaps his philosophy of teaching is best summed up by a remark in his lecture on theatres. Commenting on Charles Garnier's elaborate analytical monograph, he said: "unfortunately this sort of book is rare; I regret it all the more because if there existed one for each type of building, the collection would constitute a complete course on the theory of architecture"(iii. p. 73).

The task of those who immediately succeeded Gaudet was unenviable, and the first occupant remained in office until 1933 without giving any lectures at all.[3] In 1937 Georges Gromort made a gallant attempt to evolve something different; but although in the preface to his own course he dismissed Gaudet's course as mere history, the bulk of his book is little more than a superficial summary of Guadet's text. However, he seems to have felt certain in his own mind that this superficiality was one of the prime virtues of his approach. "The theory of architecture," he asserted in his preface, "is that ensemble of uncontested principles which are equally valid for every type of building." Thus, following Auguste Comte's dictum as quoted by Vaillant[4] (to the effect that "true theory is always general, just as healthy practice remains constantly special"), and pursuing a method already popularized by Trystan Edwards and others, he elaborated upon such generalities as "unity," "duality," "contrast," etc., thereby boosting an abstract notion of "architectural aesthetics" which had been hotly repudiated by Guadet and his friends, especially after Viollet-le-Duc (who was responsible for instituting a Chair of Aesthetics at the Ecole des Beaux-Arts) had been replaced by Hippolyte Taine.

All-embracing theories of "aesthetics" today reign supreme, and since we no longer consider it indelicate for a professor to discuss the work of his colleagues in front of his students, it would be flogging a dead horse to show that Gaudet's approach is now hopelessly inadequate for present needs. But the main reason for this is that, whereas eighty years ago all the "historical, theoretical and practical" knowledge required of an architect could be published in a single volume, such as Gwilt's revised *Encyclopaedia*, the knowledge required today is so complex and subdivided that many architectural students spend about three hundred and fifty hours a year in lecture-rooms during their five-year academic training. Thus the task of writing a modern synthesis of "The Theory of Architecture" would be as formidable as trying to bring Dr. Robison's *Mechanical Philosophy* up to date.

Many authorities argue, very cogently, that since the theory of architecture is so complex, and fragmented into so many disparate parts, a course of study specifically entitled "The Theory of Architecture" is no longer valid, and hence the term itself is meaningless. I have every sympathy with the main conclusion, but none with its corollary. On the contrary, I would contend that it is precisely because the theory of architecture is so diffuse and subdivided that a synthesis is absolutely essential. An architect must not only know how to evolve designs; he must also know how to assess them. The means of achieving this within a university is of course debatable. Perhaps the answer is to be found in the arguments for or against the *Intentions* of Christian Norberg-Schulz. I myself believe that it is impossible actually to *teach* students the criteria of assessment, and that all one can hope to do is provide

the stimulus and techniques which will permit each student to evolve a true philosophy of design for himself.[5]

I am convinced that it is wrong, in this age of constant change, even to attempt to impose a neat philosophy of architectural ideas on architectural students. Moreover, gifted and imaginative students would reject such an attempt with derision. Hence it would seem to me that the problem confronting our schools of architecture is not how to expound a viable and coherent theory of architecture (which still means, for me, those unlimited permutations of Firmitas, Utilitas and Venustas which can produce the best environment with respect to each individual programme), but how to expound the *history of theory* in such a way that each student can then go on to create a theory valid for his own generation.

This of course involves an appraisal of the meaning of Dr. Banham's term: "historians of the Modern Movement," since architectural history is too readily evaluated today in its threadbare nineteenth-century terms as the science of attributing precise dates to extinct ornament. Anyone who has attended congresses of architectural historians will be only too well aware that these meetings are still dominated by art-historians and archeologists who are concerned with little more than the classification of forms: chronologically, morphologically, or chrono-morphologically;[6] that the majority of participants tend to be indifferent to the synthesis of forms/programmes/technology/enviroment. I do not despise the work of these scholars; but it is useless to architectural students unless someone has first sifted it for such theoretical implications as it may contain.

To sum up, then: my view is (a) that each student must be given the appropriate means to create his own viable, synthetic theory of architecture, and (b) that the most promising way to achieve this would seem to be by discussing fully, in his presence, all the architectural ideals formulated since the invention of printing. If philosophers limit themselves to the architectural implications of symbolism and semiotics (i.e. to purely abstract "theories of *form*"), and if historians limit themselves to digging in Anatolis, no harm will be done; but each architectural student will then have to fend for himself. For it cannot be emphasized too dogmatically, *pace* Dr. Banham, that all conscientious architects evolve *some* theory of architecture of their own, whether it be good, bad , or indifferent; and their teachers' main concern must be that a viable, coherent theory should have taken possession of their minds before they are legally empowered to modify the environment in which we live.

NOTES:

1. Since neologisms like "Ekistics" and "Semiotics" are fashionable nowadays, Professor Collins has preferred "Oecodomics" to "The Theory of Architecture" as the title of his essay. But the term is simply a Greek equivalent of *De Re Aedificatoria*, and should therefore be strenuously resisted by all who share his view that "The Theory of Architecure" is still an appropriate and meaningful expression.
2. For the benefit of those Latin scholars who at this point are taking out their pens to write a letter to the Editors, I should state that every manuscript variation and printed Latin version of this text has been submitted to the Classics departments of Columbia and McGill, so I am well aware that there are as many translations as there are translators.
3. According to verbal information given me by his son-in-law Paul Gélis.
4. See title page of A. Vaillant's *Théorie de l'Architecture* (Paris, 1919).
5. *Cf.* Guadet. i, 652: "I shall be happy and proud if, when you think over these lectures, seeking to summarize their contents for yourselves, you find that the only way to condense their substance is to use the single word: TRUTH."
6. The most advanced stage of the disease. For example, no one knows whether Baroque is a morphological or a chronological term. Architectural taxonomy has reached such profundity that we find Professor Morrison claiming that the earliest "Georgian" house in North America was built in 1688, whilst Professor Gowans has named the period from 1725 to 1750: "American Queen Anne"...

THE ARCHITECTONICS
OF
PURE TASTE

In a lecture on "The Principles of Design in Architecture," given on 9th December, 1862, to the cadets of the School of Military Engineering at Chatham, James Fergusson, the architectural historian, explained to his astonished audience that the process by which a hut to shelter an image is refined into a temple, or a meeting house into a cathedral, is the same as that which refines a boiled neck of mutton into *côtelettes à l'Impériale* or a grilled fowl into *poulet à la Marengo*. "So essentially is this the case," he continued, "that if you wish to acquire a knowledge of the true principles of design in architecture you will do better to study the works of Soyer or Mrs. Glass than any or all the writers on architecture from Vitruvius to Pugin."

No other architectural theorist, either before or since, seems to have used this analogy; a very curious fact when one considers the general cultural significance attached to the word "taste." "Taste," as early dictionaries make clear, meant originally only "the sensation excited in certain organs of the mouth," and its metaphorical adoption in the seventeenth and eighteenth centuries as the standard term for what we now call "aesthetics" (a neologism invented in Germany in 1750) implies a clear recognition of the importance of this faculty as a key to understanding the nature of human discernment. As Addison pointed out in *The Spectator* of June 19th, 1711, "we may be sure this metaphor would not have been so general in all tongues, had there not been a very great conformity between mental taste and that sensitive taste which gives us a relish of every different flavour that affects the palate." Yet few of the various treatises on aesthetics published in the second half of the century even discuss this parallel, and the most exhaustive of them, namely the *Essay on Taste* published by Archibald Alison in 1790, does not mention food and drink at all.

One reason for this curious omission (apart from another, more important reason, which will be dicussed later) may be that gastronomy was then in its infancy. Until the end of Louis XIV's reign, eating habits were extremely coarse, and it was not until the middle of the eighteenth century that modern refinements in cooking were widely adopted. The word "gastronomy" itself was not intoduced into the French language until about 1800, and we are told by Brillat-Savarin, the first modern writer on the subject, that even in 1825 it was still sufficiently novel to bring "a smile of hilarity to all countenances." The general appreciation of fine cooking was due mainly to the establishment of restaurants, the first of which was founded in Paris in 1770, and it was not until the Napoleonic era that these had multiplied sufficiently to give French cooking its universal and popular prestige. But it is still difficult to explain why the analogy between architecture and fine cooking should have been so persistently neglected during the last century, considering the urge experienced by so many architectural theorists to justify their ideas analogically with reference to other sciences and creative arts.

There is no doubt that if one wishes to demonstrate the distinction between architecture and plain, ordinary, straightforward building (and this is clearly what Fergusson was trying to do), the distinction between gastronomy and plain, ordinary, straightforward cooking possesses many close similarities not displayed by music, literature, biology, mechanical engineering, or any of the other arts or sciences with which architecture has so often been compared. Firstly, it is concerned, as Brillat-Savarin observed, with the conservation of mankind, and is thus, unlike the other arts, a necessity rather than a luxury. Secondly, unlike all those analogies just listed, it concerns something which is both a science and an art. Scientifically, gastronomy demands the combination of a number of prepared materials of known strength, arranged according to an ideal sequence or plan, the efficacy of which can be analysed and tested. Artistically, it goes far beyond the dictates of scientific analysis, for gastronomy, like architecture, requires intuition, imagination, enthusiasm, and an immense amount of organizational skill. Gastronomy is also more expensive than plain, honest, straightforward cooking, since it usually involves lengthier preparation and richer ingredients. It seems reasonable to suppose that there

may also be other, more subtle, similarities between gastronomy and architecture, and that these may help us to visualize what the essential virtues of architecture ought to be.

Perhaps the most instructive way to seek out these similarities is to compare gastronomy and modern architecture in the age in which they both originated, namely the mid-eighteenth century, and then compare them as they are today. This first era, according to John Steegman, can only be fittingly described as the era of the Rule of Taste. This title is most appropriate, he says, because it implies a régime in which taste—the only word expressing both an immutable quality of discernment, criticism and perception, and an active sensitivity to temporary fashions—is paramount, and a time when fashions in taste are governed by universally acknowledged rules. These rules were not in fact very easy to determine, but there is no doubt that the leading architectural theorists of the period were constantly trying to formulate them, and that they did this by studying not only the buildings of antiquity, but the best buildings of their own day. The first regular meeting of the French Academy of Architecture began its discussion in 1672 with the question: "What is good taste?", and although the problem was never satisfactorily resolved, it was generally agreed that "the true rule for recognizing things which display good taste is to consider what has always been most pleasing to intelligent persons, whose merits are known by their works or their writings." In other words, the supreme rule of the classical artist was that his work should please.

This desire to please was also, and still is, the principle aim of a good chef, but it is doubtful whether it is the aim of all the leading painters, sculptors and architects today. For whereas a good chef is concerned only with the whims of his clientele and the appreciation which his artistry will receive, artists like Henry Moore boast their refusal to fulfil commissions requested by connoisseurs they respect. A good chef does not, after competitions, write abusively of experts who prefer some other artist's work. He does not feel that he is prostituting his art by creating something which resembles a work created two centuries before. If ever he says to a client: "take it or leave it" (and there are ways of saying this in French with considerable force), it is because he realizes that his client has no standards of taste, not simply because the person's tastes differ from his own. On the contrary, it is in the vicarious adaptation of his own tastes to each different customer's appetite that his supreme artistry resides; hence his art is always essentially human, because it keeps in the closest contact with the subtly varying moods of mankind.

Today, taste is no longer synonymous with aesthetics, because the modern theoretical approach to art takes no account of the public at all. The eighteenth century philosophers, though fully aware of the distinction between what they called "active taste" and "passive taste," were essentially concerned with the latter, i.e., with art from the point of view of an observer's reactions. Today, however, as a result of the influence of Benedetto Croce, aesthetic theories are usually only concerned with the act of artistic creativity itself. Art is considered to be essentialy a form of expression, and it now irrelevant to enquire whether or not it gives pleasure, since this is not its aim. It is as if an omelette were judged simply by the genuineness of the chef's passionate urge to go around breaking eggs.

The architectural theorists of the mid-eighteenth century tried to establish classical recipes for good architecture in much the same way as the chefs of that period were trying to establish classical recipes for *haute cuisine*, and the criterion of

both was that the results should be widely enjoyed. Not just enjoyed by other architects and other chefs, or by the editors of the *Almanach des Gourmets* and *l'Architecture Française*, but by all persons of cultivated taste. Now this very word "cultivated" implies that taste can not only be trained, but should be trained according to certain universally accepted standards. If those who teach the arts do not believe in such standards, or if they claim, like Paul Rudolph, that they are still searching for such standards, it is clear that whatever the merits of their instruction, they are concerned essentially with fashion, not with taste.

The standards of gastronomy have remained unchanged for two centuries, and are uncontested. The standards of architecture would also be uncontested if romantic influences had not, for two centuries, vitiated its theoretical basis, and spread the germs of its debilitating criteria like phylloxera throughout the western world. It is no coincidence that anglo-saxon cooking is proverbially bad, for bad food and bad architecture both derive from the same philosophical disease.

This disease is, quite simply, romanticism, or the refusal to accept the fact that, in the highest art, sensation must be subordinate to reason. For two centuries, western art has been divisible into two antagonistic categories, which may be described either as romantic versus classical, or emotional versus rational. Now the essential nature of the revolution which took place in French cooking in the mid-eighteenth century was that the coarse and purely sensual methods of Roman, Mediaeval and Renaissance eating were *rationalized* . "Gastronomy," explained Brillat-Savarin, the father of the new art, and whose only defect was an over-fondness for improper jokes about sausages, "is the rationalized knowledge of everything which relates to man in so far as he nourishes himself." "Only intelligent men," he continued, "honor fine food, because the others are not capable of an operation which consists in a sequence of appreciation and judgements."

In conformity with Brillat-Savarin's philosophy, the leading French architectural theorist of the mid-eighteenth century similarly defined taste as "the fruit of reasoning," and added, in words which almost paraphrase Diderot's definition of a true philosopher, that "taste founded on reason accepts neither ready-made systems nor the authority of private opinions." But in England at this time, the writers on Taste were already rejecting classicism in favour of romanticism, and it is doubtless mainly for this reason that Alison, in his *Essay on Taste*, did not mention food at all, since gastronomy clearly did not fit into the romantic aesthetic theory of "the association of ideas."

According to this theory, man's awareness of the beauty of proportions is due entirely to a mental association of the relationship between form and function, and the appreciation of... the beauty is due... entirely to the stimulus given man's imagination by (in the case of Gothic Revival, Greek Revival or Classical designs) the evocation of the lost glories of the Middle Ages, Greece or Rome. Today, we also seem to consider that architectural beauty is based on the idea of functionalism and romantic associations, although nowadays we romanticize the future, rather than the past. In both instances architectural appreciation, being subjective, is primarily governed by fashion, which to the classical theorist was "the tyrant of taste." "Taste, once aquired, should exclude every kind of fashion from architecture as so many obstacles to its progress," the professor of architecture at the French Academy told his students two centuries ago, and

went on to criticize young architects for neglecting sound principles in favour of new inventions, which must inevitably be superseded by other novelties in their turn.

Novel recipes for preparing food are, of course, frequently invented, but the old recipes still retain the same authority and prestige which they had before, because they are, literally, what Frank Lloyd Wright called "in the nature of materials," and thus their aesthetic properties never become stale. The recipes in Viard's *Cuisinier Royal* (a book already printed in ten seperate editions by 1820) are all to be found in the latest edition of *L'Art Culinaire Français*, and the latter only supersedes the former because in the latter, there are three thousand recipes more. In gastronomy, there is no prestige attached to novelty *per se*, and nobody asks a chef if he can be guaranteed always to provide something "contemporary." Nor would any gastronome ever refuse *filets de volaille à la Bellevue* simply because they were invented by Madame de Pompadour, or angrily ask why he was not getting the latest recipe from the *Ladies' Home Journal* instead. In cooking, as in any art which really flourishes, the only values recognized are those concerned with degrees of excellence, and the decline in architecture occurred when architects forgot this, and started worrying about whether they were being "contemporary" or "reactionary," instead of whether their work was good or bad.

There are several factors which encourage this attitude, but there is one which is particularly obvious, namely the fact that whereas the eighteenth century recognized the rarity of a creative artist, the twentieth century, convinced of the operation of some universal law which equates supply and demand, and deluded by a combined faith in the virtues of a college education, and an equally solid faith (fostered by exhibitions of Action Painting and juvenile art) in the virtues of no artistic education at all, is convinced that everyone is potentially some kind of an artistic genius, and that anyone can become a creative architect once he can use a set-square and pass the technical exams. Yet it must be obvious that in architecture, as also in gastronomy, drama, and music, there are two kinds of artist; those rare spirits who can create original compositions, and those, less gifted, whose vocation is to adapt, interpret or assist.

Creative genius is in fact extremely rare in all the arts, but it is demonstrably rare in gastronomy, drama and music because it is the general public, rather than a few avant-garde connoisseurs or magazine editors. which decides whether the artist's originality is worth anything or not. Any contemporary musician can get his compositions broadcast, but with rare exceptions, the only public auditorium in which he has a chance of hearing his work twice is, according to Sir Thomas Beecham, the Albert Hall in London (the echo of which has long been notorious). Theatre-goers and music-lovers, as well as gourmets, know from hard experience that even the most favourable conjunction of circumstances rarely produces more than half-a-dozen original geniuses in each generation, however generously they may be subsidized by the Ford Foundation or the Fulbright Fund. Most artists are condemned by Fate, whatever their ambitions, to be executants who adapt and re-interpret (with greater or lesser sensitivity and appropriateness) the basic ideas created by someone else; yet all young architects regard themselves as creative artists, because our whole system of architectural education is specifically organized to give them this idea.

In English, the word "chef" is synonymous with "cook," but this title, like that of "architect," should belong by right to those who have not only fully mastered every known aspect of their art, but were endowed at birth with the divine gift of the Muse. "*On devient cuisinier, mais on naît rôtisseur,*" wrote Brillat-Savarin, in Aphorism No. XV. "*On devient ingénieur, mais on naît architecte,*" wrote Auguste Perret a century later, and listed it as Aphorism number one.

TOWARDS A NEW ORNAMENT

All architects agree that architecture is something more than just plain, honest, straightforward building, but it is becoming increasingly doubtful, as the variety in contemporary monumental buildings increases, whether they agree as to what that "something" is. It is clear, for example, that many buildings serving the same function, such as the latest university buildings constructed in England and America, have little in common with one another (apart from the use of modern building technology) except "the rejection of the trappings of the historical styles"; that stirring but superannuated warcry which was the inspiration of the early pioneers. But whereas the importance of these buildings is widely accepted, and their architectural qualities frequently discussed, the nature of the factors which differentiate these qualities from purely technological qualities has yet to be unequivocally defined. It cannot be simply a matter of good proportions, because proportion has little relevance to Giedion's theory concerning the Interpenetration of Space, whether it be Baroque space or Cubist space. Moreover, it is clear from at least two recent competitions (the Sydney Opera House and the Toronto City Hall, where the proportions of both winning entries have had subsequently to be considerably modified because of the structural inadequacies of the original designs) that proportion is not considered an important criterion. The distinction must therefore lie in something else.

In the nineteenth century, the majority of theorists had no doubts whatsoever about the nature of this distinction, since they generally agreed with James Fergusson that architecture was "nothing more or less than the art of ornamented and ornamental construction."[1] The problem which obsessed them was to decide what was the correct type of ornament. There were, of course, one or two eccentrics who rejected the idea of ornament altogether. J. N. L. Durand had insisted, at the beginning of the century (when the French state was in fact too poverty-stricken to ornament new public buildings even if it wanted to), that beauty in a building resulted naturally and necessarily from the most economical structure imposed on the most economical plan. Horatio

Greenough, still smarting over the rejection of his nude statue of George Washington, similarly insisted on the total rejection of ornament, and used arguments which were later to be employed by Adolf Loos. But the nineteenth century in general approved unquestioningly the desire for ornament, which Owen Jones, for example, believed "must necessarily increase with all peoples in the ratio of the progress of civilization."[2] As a result, ornament, far from being rejected by the leading architects, became more luxuriant and more extravagant as the century proceeded, until it culminated in the rich overall surface decorations we associate with the nineteenth-century buildings of Louis Sullivan and Frank Lloyd Wright.

Curiously enough, the problem which occupied the most thoughtful and progressive mid-nineteenth-century theorists was not so much concerned with the nature of ornament as with the nature of plain straightforward building. Two answers were put forward; the first, making use of an analogy with literature, claimed that plain building was comparable to vernacular speech; the second, making use of no analogy at all (a singularity at a time when analogy seemed to most theorists to be the only alternative to archaeology) claimed that plain building was nothing more nor less than civil engineering itself.

The belief in the virtues of "vernacular" structures was the basic tenet of the Queen Anne Revival, first proposed exactly a century ago by the Rev. J. L. Petit, a well-known belligerent of the Battle of the Styles, and probably inspired by Scott's *Remarks on Gothic Architecture* (1858), where the relationship between "vernacular domestic architecture" and the ecclesiastical architecture of the thirteenth century was fully discussed. At a lecture given in May 1861, he suggested that if his audience were to look at the best monumental buildings of Queen Anne's reign, they would see that these were simply vernacular buildings plus ornamentation of a very appropriate kind. As a result, they harmonized with the character of the houses men built when they built without reference to style, and were guided solely by the consideration of their own requirements, the state of society, climate and materials.[3] It was a style, moreover, which was perfectly suited to the wants of their own day; "expressive, or capable

of being made expressive of the spirit of the age; and sufficiently comprehensive to embrace both vernacular and monumental works, and that large class which partakes of both characters."[4]

The significance of this proposal, as far as more recent developments in architecture were to be concerned, was threefold. Firstly, it deliberately broke through the archaeological barrier which in England and America had separated architecture from life for nearly a century, and substituted the idea of selecting architectural forms on the basis of their appropriateness, and according to the designer's unfettered choice. The Queen Anne period was taken as a suitable precedent because many buildings constructed then were characteristic of what Sir John Summerson has called "artisan mannerism"; the unsophisticated mixing of various tectonic and decorative elements without that antiquarian pedantry which in the following reign so often typified the architecture of Palladianism. Moreover the Revival itself went even further; it often employed motifs that were not eighteenth-century at all, but more strictly Jacobean. In other words, the "Queen Anne" style in England was really the equivalent of the "Francis I" style in France, when Renaissance decorative motifs were applied undogmatically to freely-planned compositions (as on the Francis I wing at Blois) without strict reference to antique precedents or rules.

Secondly, the Queen Anne Revival introduced into England the philosophical notion of Eclecticism. This word is frequently misused to signify an indiscriminate use of styles, such as was exemplified by those architects who designed Palladian buildings one day and Gothic buildings the next without any apparent misgiving. In this sense, it corresponds to what theologians more correctly term "Indifferentism." The true meaning of Eclecticism is defined in the *Encyclopaedia Britannica* as "a composite system of thought made up of views selected (εκλεγω) from various other systems," and it was in this sense that it was proposed by César Daly in the *Revue Générale de l'Architecture* in 1858.[5] The idea undoubtedly stemmed from Victor Cousin's series of lectures entitled *The True, The Beautiful and The Good*, published five years earlier, in which the historical method was applied to philosophy in the same way that Darwin was then applying it to biology and architects were applying it to architectural design. Victor Cousin claimed that one should not pedantically accept any one philosophical system to the exclusion of all others, but decide rationally and independently what philosophical facts were true, and then recognize and respect them in whatever historical contexts they appeared. The history of philosophy thus became, he asserted, "no longer a mass of senseless systems, a chaos, without light, and without issue; but in some sort a living philosophy." If, in this sentence, we substitute the word "architecture" for the word "philosophy," we have the basis of the theory proposed by César Daly, elaborated by Guadet, and still taught in most of our schools.

Thirdly, it introduced the notion that the basis of a living architecture was, in J. L. Petit's words, "our ordinary or vernacular architecture." The important effect of this on subsequent architectural theories cannot be exaggerated. In the first place, it undermined the old idea of relating monumentality to temples and churches by giving minor domestic architecture a predominant influence over architectural theory. Thus the houses designed by the pioneers of modern architecture became the most influential means by which new forms and ideas were introduced. In the second place, it challenged the Italian Renaissance doctrine—introduced into architectural education in 1806 with the foundation of the Ecole des Beaux-Arts—that architecture was essentially one of the three Arts of Design; for by insisting upon the analogy between architecture and literature (in which composition also makes use of a vocabulary of standardized elements), it separated the theory of architecture from that of sculpture and painting; arts in which, as Susanne Langer has observed, a vocabulary of elements plays no part. Lastly, it established the doctrine that this vocabulary must consist of tectonic elements corresponding to what in traditional structural systems called "vernacular'; a name used because the elements were established by local craftsmen on purely practical grounds, and assembled in accordance with the requirements of functional plans.

The only problem to decide was what, in the 1860's, corresponded to "vernacular" building, and it is to James Fergusson's credit that he seems to have been the first to perceive that the supersession of traditional building materials and techniques by the new materials and techniques of the Industrial Revolution was precisely the reason why any New Architecture was really necessary at all. The new vernacular, he said, was to be found in the works of the engineers, since these were the people who now followed "the commonsense principles which guided builders in all previous ages." If the architectural profession were to be properly organized, the engineer would merely be "the architect who occupied himself more especially with construction and with the more utilitarian class of work" whilst the architect, properly so called, would be "the artist who attended to the ornamental distribution of buildings, and their decoration when erected."[6]

The fact that no New Architecture appeared until the very end of the nineteenth century, despite the hopes placed in frames of cast and wrought iron, was a result of the fact that no radical technological innovation was economically utilizable as a complete structural system until steel frames and reinforced concrete frames (i.e. frames in which the vertical as well as the horizontal members were resistant to tensile stresses) were introduced after 1880. Even then, the need to cover steelwork with fire-resistant faience, and the difficulty of making concrete surfaces homogeneous, encouraged an even greater use of ornament, whilst providing the most convincing justification for separating the concept of ornament from that of the structure which it concealed. But between 1900 and 1950 a highly complex and varied vocabulary of new and elegant structural components was gradually evolved, until at the present day the nineteenth-century dream of a new tectonic "vernacular" has become a reality. The problem now is: has this vocabulary become so rich that architecture can be produced by merely combining these tectonic elements into the most rational and economical arrangement required by a particular programme, or does the essence of architectural composition still consist of honest straightforward building plus something else?

In the 1920's and 1930's, the pioneers of our own architecture seem to have had only a vague presentiment of the difficulties which this problem would eventually produce. In 1935, Walter Gropius accurately recorded that the "first or rationalizing stage" of modern architecture was only "a purifying process," and that the ultimate goal was the "composite but inseparable work of art, the great building in which the old dividing line between monumental and decorative elements will have disappeared for ever."[7] But being unwilling, because of his rejection of history, to refer to any historical precedents, his only hint as to the nature of this new monumentality, of the *differentia* which would distinguish monu-

mental architecture from just good plain building, was merely that it would be found "in those simple and sharply modelled designs in which every part merges naturally into the comprehensive volume of the whole,"[8] a definition which at best only paraphrases the standard classical aphorisms enunciated from the time of Alberti to that of J. F. Blondel.

Le Corbusier's early writings appear more helpful, since he not only distinguished between the "engineer's aesthetic" (which produces only harmony) and the "architect's aesthetic" (which produces both harmony and beauty), but made specific recommendations as to how this beauty was to be attained. Yet even Le Corbusier's speculative contribution has turned out to be largely illusory, for he has now abandoned his early system of "regulating lines" (which was in fact little different from the standard method of proportioning then use at the Ecole des Beaux-Arts), whilst his latest buildings clearly owe nothing to the machine-precise profiling, or *modénature*, which he recommended as exemplified in the Parthenon. *Towards a New Architecture*, with its constant appeal to the authority of ancient temples and churches of various historical periods, in fact made little methodological advance on nineteenth-century Eclecticism, whilst his deliberate omission of Gothic monuments brought the historical basis of his theory completely in line with that of the devotees of Queen Anne.

Probably the only really frank examination of this problem within the last century has been that formulated during the Queen Anne Revival itself by Robert Kerr, professor of the Arts of Construction at King's College, London, and one of the most caustic critics of the architecture of his age. In a lecture given at the RIBA in January 1869, he put forward the view that since architecture was obviously just a dress by which the artist's pencil, like a magician's wand, transformed a structure from a dull lifeless piece of building into something eloquent, it ought more fittingly to be called the Architecturesque. This dress was constituted, he said, primarily by ornament, the desire for which, more than anything else, separated the intelligence of man from that of the lower animals, and urged him to strive after perpetual novelty. What people had been in the habit of calling "the principles of architectural design" were simply the principles of architecturesque treatment. Good architecture was true architecturesque, bad architecture spurious architecturesque, and the means of obtaining both were fourfold: structure ornamentalized (or rendered in itself ornamental), ornament structuralized (or rendered in itself structural), structure ornamented, and ornament constructed.

Now preposterous as Robert Kerr's argument may seem, his terminology is not inappropriate to some of the more publicized monuments of to-day. There can be no disputing the fact that architecture is becoming increasingly "ornament structuralized," if not "ornament constructed," for the whole trend of Le Corbusier's powerful influence has been moving in this direction for some time, and is now bearing fruit on both sides of the Atlantic. Is Chandigarh an example of what J. M. Richards once called "the sincerity which is at present architecture's special virtue, and the inevitability which it gets from its appearance being so closely related to its structure?"[9] If so, we should examine carefully what we now mean by "structure." Or must we admit, to continue Richards's phraseology, that modern architecture is becoming "merely decorative, an imitation of itself?"[10]

It has long been recognized that the ideal of creating monumental architecture solely by the consideration of our own requirements, the state of society, climate and materials is quite impractical without some additional quality which, in fact, is nothing more nor less than the artist's creative intuition. This must either order, proportion, refine and embellish a basic economic structure and composition, or create shapes which greatly transcend the mere economical fulfilment of practical needs. But refinement and adornment were both included in what the eighteenth-and nineteenth-century classical theorists understood by "ornament," as when the Abbé Laugier wrote: "the flutings and other enrichments with which the sculptor's chisel charges different elements are true ornament, because they can be accepted or suppressed without altering the nature of the Order."[11] By rejecting the idea of "ornamentalized and ornamented structure," and disregarding the principle enunciated by Fénélon when he remarked (concerning the superiority of classical architecture over gothic) that "one must never allow into a building any element destined solely for ornament, but rather turn to ornament all the parts necessary for its support," we seem to have been led to adopt "structuralized and constructed ornament," and this charge was levelled against Le Corbusier and his friends as early as 1925: "Nobody speaks now of anything but straight lines, essentials and construction; but if one looks closely, it is obvious that ornament is still the only thing that matters, so that there are finally more useless things than ever before. These useless elements are so rigid and bare that the uninitiated assume them to be necessary; thus the error is all the more serious for being dissimulated."[12]

One cause of the present luxuriation in suspended concrete awnings and extravagant concrete roofs has lain, initially, I think, in too hastily rejecting nineteenth-century rationalist principles when discarding nineteenth-century imitative practices. As a result, all the leading post-1930 theorists except Mies van der Rohe threw away the baby with the bathwater. The great mid-nineteenth-century rationalists, such as Charles Barry in England, and Henry Labrouste in France, had applied the right principles to the wrong materials, an error for which they were hardly to blame, because the proper materials had not yet been perfected. But the twentieth-century theorists, following the lead given by Etienne-Louis Boullée a century before, not merely rejected superfluous ornament and the tyranny of past styles; they rejected also the classical definition of architecture as "the art of building," claiming that Alberti and his successors had foolishly mistaken the cause for the effect. They did not, like Boullée, preface their treatises with the words *ed io anche son pittore*, but they might fittingly have done so, for the principles they substituted were mainly concerned with light, shade and space.

Their reason for doing this must, I think, be obvious. During the nineteenth century, architecture had been brought into disrepute by the archaeologists and antiquaries, whose wrangles had culminated in the Battle of the Styles. To avoid the same error, the theorists who tried to create a New Architecture sought to avoid all references to the history of architecture. But if one cannot theorize with reference to the architecture of the past, one cannot theorize about architecture at all. The only alternative is to rely in analogies. The French and English theorists of the nineteenth century sought analogies with biology, machinery, speech and, in at least one instance, gastronomy. But the leading German theorists of the twentieth century, perhaps through a Spenglerian fascination for "space," and a mystical attachment to the philosophical notion of "architectonics,"[13] preferred an analogy with painting, sculpture and industrial design, espe-

cially when these so conveniently developed into "abstract art."

The theory of those who, pursuing the ideals of nineteenth-century rationalism, opposed this attitude, is not easy to define with certainty, because its exponents were usually taciturn men, who felt that a few epigrams were quite adequate to explain their work to those who really wanted to understand. But its general principles can, I think, be summarized under three headings corresponding to the planning, construction and appearance of buildings, or, if one prefers, to the Vitruvian categories of commodity, firmness and delight. As regards "commodity," they believed that since the purpose of architecture is to create useful, interesting, varied and harmoniously related spaces, urban architecture is superior to rural architecture because it not only defines indoor spaces, but also combines to create plazas, courtyards and streets. Thus, even when developing new cities, they were led to study the appearance of buildings in terms of contiguously aligned façades. It may be true that "the basis of the Victorian view of architecture was as large-scale sculpture,"[14] but such sculpture was not thought of as isolated in a void, or seen from above, like Malewich's "Architectonics," but as contributing to a perspective seen from the ground. The pioneers of contemporary architecture, under the influence of the "Queen Anne" tradition (which based its theory of a "vernacular" architecture on suburban villas), and of Constructivist sculpture, were unable to conceive of architecture except as isolated elements, visible from all round; and it is typical of the confused reasoning in *Towards a New Architecture* that, although virtually all Le Corbusier's published domestic projects were designed in this way, the historical example he uses to support his views (namely a Pompeiian house) exemplifies exactly the opposite principle, in that here the exterior has no visual significance, and all the open spaces on the site are obtained by means of courtyards inside.

As regards "firmness," the nineteenth-century classical rationalists realized that a minimal structure is not only unnecessary in small spans, but is probably incalculable, since the forces are so varied. Moreover, as Léonce Reynaud had pointed out, "one must not conclude that all the parts of our structures must be submitted to the laws of mechanics, for it is evident that the prescriptions of science can lead to great difficulties of execution."[15] But they considered that there should be an economical correspondence between the forces to be resisted and the structure designed to resist them,[16] and believed, like Viollet-le-Duc, that "Construction, for the architect, is the employment of materials with the preconceived idea of satisfying a need by the simplest and most solid means."[17] At the end of the last century, and at the beginning of this, they used frames rather than elaborate cantilevers, because the leading building contractors had shown these to be the most economical way of erecting multi-storey buildings when no question of aesthetics was involved. They were not unmoved by the sight of great halls built for international exhibitions, but they did not regard their roofs as structural paradigms for spaces of a fifth the span.[18] Similarly, they would have studied an engineer's architectural structures, rather than his bridges, if they had wanted to apply his principles to the problems they were studying themselves.

As regards "delight," the nineteenth-century classical rationalists believed that the only difference between architecture and plain, honest, straightforward building was that architecture was both sensitively proportioned and pleasingly detailed, whereas plain building was not. In this their ideas seem to have been in harmony with those of every other period of European architecture, except the Italian Renaissance and the German Baroque. If we compare an early stone cotton mill (such as the mill at Curbar illustrated in J. M. Richards's *Functional Tradition in Early Industrial Buildings*) with any of the really important classical rationalist buildings in England, such as Charles Barry's Bridgewater House, we can see that the differences have nothing to do with "the trappings of the historical styles," but are simply due (apart from variations in size and plan, resulting from the difference of function) to the fact that the apertures and volumes are more carefully proportioned, and the surfaces more carefully worked. If we take the worst possible French example, namely Garnier's Paris Opera House (which even in its own day was criticized for its excessively Italianate Renaissance and Baroque polychrome ornamentation), we see that in the one part comparable in composition and plan to the mill at Curbar—namely the six-storey administrative office block which constitutes the northern end—a similar policy has been observed. And whatever one may say of the rest of the Paris Opera House, there is no doubt that unlike Boullée's or Utzon's designs for opera houses, this building can be clearly seen, by its compositional elements, to be a theatre, and by its detailing to be the most important theatre in the state. As J. F. Blondel once observed, the more accurately we can express the relative importance and function of buildings by this means, the closer are we to achieving "that infinite variety between different buildings of the same type or of different types" which is the essence of style. "Style, in this sense," he explained, "is like that of eloquence; it is the poetry of architecture."[19]

The mid-Victorians, who hated insipidity, were usually over-fond of ornament (which they regarded as the natural expresssion of wealth), but even so, the best architects who pandered to their tastes realized that the essential difference between architecture and plain building lay not in complexity and extravagance (whether this be thought of in terms of construction or of the interpenetrations of space) but in proportion, refinement, and, if appropriate, adornment. As a result, their buildings have a scale and tactile richness which can only be appreciated by walking amongst them, and looking at them close to. The best urban buildings of the nineteenth century are seldom very interesting when seen from the air. They certainly have not the same compositional interest which models of important modern buildings usually possess. But at ground level they have a warmth and humanity found in the best architecture of all ages except our own, and this is becoming more and more obvious as old and new buildings become more frequently juxtaposed.

It is no longer posssible to use the word "ornament" in Alberti's sense of an "auxiliary brightness," because this word, thanks to Adolf Loos, is now regarded as obscene. But there is no virtue in banishing obscenity from our vocabulary unless we also banish it from our practices, and if we have no choice, as seems likely now, between ornamenting our structures or constructing abstract ornament, it is perhaps time we seriously revaluated nineteenth-century rationalism is terms of the potentialities of the second Machine Age.

NOTES:
1. James Fergusson: *A History of Architecture* (1865), vol. i, p. 9.
2. Owen Jones: *Grammar of Ornament*, first sentence of chapter 1.
3. It required a theorist who was not a professional architect to perceive the importance of this characteristic of vernacular building. Another thoughtful layman, Dr. John Robison, had remarked on the same thing in his lectures on *Mechanical Philosophy* given at Edinburgh University at the end of the eighteenth century: "In the simple unadorned habitations of private persons, every thing comes to be adjusted by an experience of inconveniences which have resulted from too low pitched roofs,

and their pitch will always be nearly such as suits the climate and covering. Our architects, however, go to work on different principles...We cannot help thinking that much of their practice results from a pedantic veneration for the beautiful products of Grecian architecture...Since stone is the chief material of our buildings, ought not the members of ornamental architecture to be refinements on the essential and unaffected parts of a simple stone-building?" (1822 ed. p. 555).

4. *The Builder*, vol. xix, p. 351. The fact that this idea was put forward very soon after the Battle of the Styles (i.e. The Foreign Office Competition controversy of 1857-59) is clearly of great importance when assessing the significance of the Queen Anne Revival. In the sole authoritative monograph on this subject (AR July 1943, p. 16) Dudley Harbron was only able to trace the style back to 1874. The first Queen Anne Revival building, according to Professor Hitchcock, was the lodge at Kew Gardens, dated 1867.

5. This, as Professor Pevsner has kindly pointed out, is contemporary with Scott's correct use of this term in his *Remarks on Gothic Architecture* (p. 265), published in the same year. But whereas Scott demanded unity of style (i.e. based on thirteenth-century Gothic) and believed that "like all genuine styles," the style of the future must have "its roots in the temple" (p. 273), the essence of Daly and Petit's advocacy was to disregard archaelogical classifications, and to accept all buildings of the past as a potential "porfolio of motifs." It is worth noting that Diderot, in the *Encyclopédie* of 1755, defined it rather differently from both and in a way typical of classical rationalist thought. "An eclectic," he wrote, "is a philosopher who treads underfoot prejudice, tradition, seniority, general consent, and authority, and...goes back to the clearest general principles, examining them, discussing them, and accepting nothing except it be on the evidence of his own experience and reason." We may compare this with the remark of J. F. Blondel (who contibuted the articles on Architecture to the *Encyclopédie*): "The ancients can teach us to think, but we must not think as they did..." (*Cours*, vol. iii, p. lv).

6. James Fergusson: *ibid.* vol iii, p. 474.

7. Walter Gropius: *The New Architecture and the Bauhaus* (1935), p. 44.

8. *Ibid*, p. 32.

9. J. M. Richards: *An Introduction to Modern Architecture* (1940), p. 13 of revised ed.

10. *Ibid.*

11. M. A. Laugier: *Essai sur L'Architecture* (1755), p. xvi.

12. Auguste Perret, quoted in *L'Amour de l'Art* (1925), p. 174.

13. Cf. the quotation from Muthesius' *Stilarchitektur und Baukunst* (1902) given by Reyner Banham on pp. 73-76 of *Theory and Design in the First Machine Age*: e.g. "the re-establishment of an architectonic culture is a basic condition of all the arts & c." (p. 76). In this wide sense, the term is clearly a garbled derivative of the penultimate chapter of Kant's *Critique of Pure Reason* (1781).

14. J. M. Richards: *ibid.*, p. 26.

15. L. Reynaud: *Traité d'Architecture* (1860 ed.), p. 6. It is in the writings of Reynaud, Choisy, and other mid-nineteenth century professors of architecture at the French Engineering schools (Ecole Polytechnique, Ecole des Ponts et Chaussées, Ecole de Génie Militaire) that the clearest exposition of classical rationalist principles is to be found.

16. P. L. Nervi foresaw that the proportions of Utzon's design for the Sydney Opera House would have to be changed. "The fact is that this building is an eloquent example of the most open anti-functionalism in statics and construction, and a consequence of the arbitrary nature of their forms, which clearly run against the laws of static construction. One can easily imagine the brilliant feats of calculus, technique, and the *waste of materials* which will be necessary *even if they succeed without substantial formal and other modifications,* in keeping it standing." *Casabella* (July 1959).

17. E. Viollet-le-Duc: *Dictionnaire Raisonné de l'Architecture Francaise, XIe-XVIe Siècle*, vol. iv, p. 1.

18. It is now almost a tradition for the leading architectural historians to speak slightly of Perret's use of reinforced concrete frames in multi-storey buildings, by contrasting them with some other designers' spiral stairways, winch towers or 200-ft. span vaults. But it is obvious, from the evidence of Perret's own work (e.g. the stairway in his own office, the reservoir tower at Saclay, and several of his single-storey buildings) that he himself avoided frame construction where it was inappropriate. The continued popularity of frame construction among building contractors for multi-storey offices and apartment blocks suggests that it is still one of the most efficient systems in its proper place.

19. J. F. Blondel: *Cours d'Architecture* (1771), vol. iv, p. lv.

Construction des Platebandes et Plafonds du Portable du Louvre.
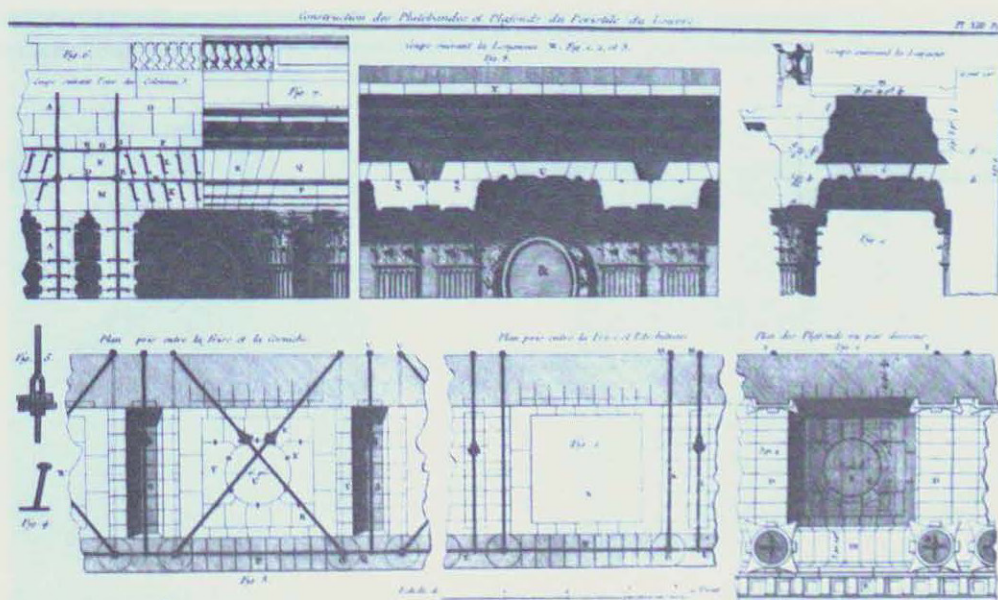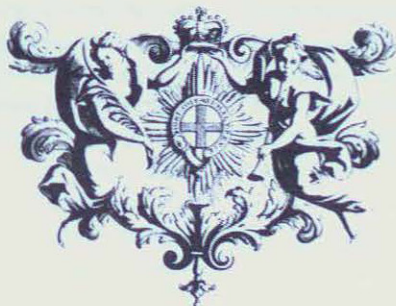
Pierre Patte, Mémoires sur les objets les plus importants de l'Architecture.

THE LINGUISTIC ANALOGY

The Language of Post-Modern Architecture
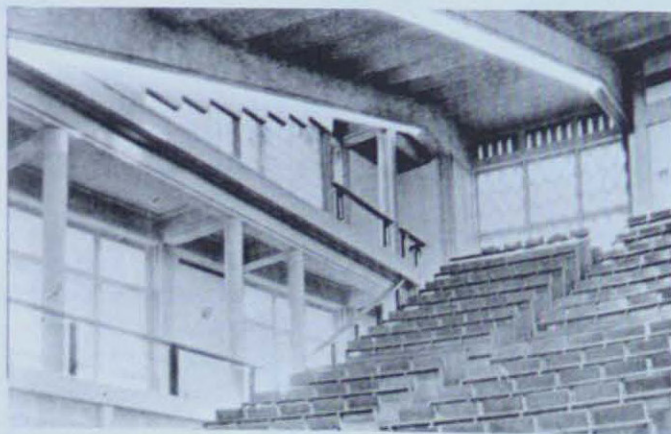
The current, and certainly the most widely popularized analogy between architecture and language nowadays is that whereby architecture is interpreted in accordance with the theory of literary criticism called "structural linguistics." For this reason, I begin with an illustration from Charles Jencks' *The Language of Post-Modern Architecture*. In the text which accompanies this picture, he writes—

When pre-cast concrete grills were first used on buildings in the late 1950's, they were seen as "cheesegraters," "beehives" or "chain-link fences." Ten years later, when they became the norm in a certain building type, they were seen in functional terms: i.e. "this looks like a parking garage."

The caption to his illustration says:

While the "cheesegrater" is now no longer perceived as a metaphor, the precast grill is on rare occasions still used for offices. Whether it signifies garage or office depends on the frequency of usage within a society.[1]

It is not my present purpose to argue, in the context of this lecture, the accuracy or otherwise of this general philosophical approach, which in France is called "structuralism." But it seems to me essential to begin any discussion on "the linguistic analogy in the history of architecture" by distinguishing between the basic theoretical concepts used today and those initiated two centuries ago.

In the 1750's, the idea emerged that all buildings can, if well designed, express their purpose. The idea was not that this purpose needed to be explained verbally. It was, on the contrary, that a building's function was "announced" by the manner in which it was designed. Similarly, architectural criticism was concerned primarily with assessing the way each architect had translated the requirements of his client into a building, and overcome the constraints imposed by topographical and financial limitations. The final result was judged by reference to the standards of classical composition, the only standards then recognized as valid.

In the 1750's architectural criticism, (which concerned the translation of needs into visual shapes) differed from lit-

D. Honegger: University at Fribourg—Auditorium
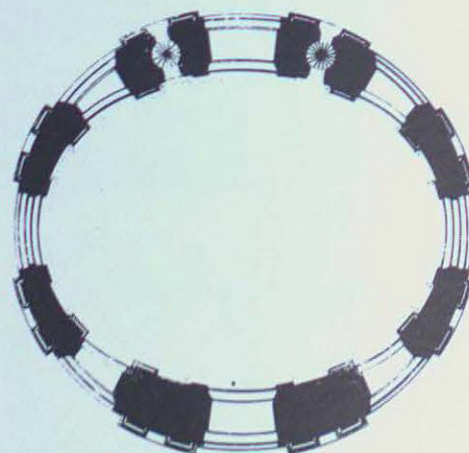
Marette, Architecture Française

Le Vau: "Plan de l'Eglise du Collège des Quatres Nations"

erary criticism, which was then primarily concerned with translating one language into another (such as Latin into the vernacular). Today, literary criticism is still a form of translation; but instead of translating from one language to another, the critic simply translates from one type of English into another type of English, or from one type of French into another type of French. The linguistic analogy used by architectural theorists two centuries ago was part of a process of logical thought. Its purpose was essentially heuristic. It was concerned, like all philosophical analogies since the time of Plato, with inductive speculation which might hopefully lead to the discovery of new useful hypotheses. Though it began in the mid-eighteenth century, its heyday was in the the 1850's when the Battle of the Styles was bringing Revivalism into disrepute, and when no viable new systems of architectural construction—such as steel and reinforced-concrete frames—had as yet been economically developed within the building industry. From the late-nineteenth century onward, the biological and mechanical analogies became more popular; but since they were also used heuristically, it mattered little which analogy was argued providing it produced new and valid ways of building.

This is a detail of the main auditorium of the University of Fribourg, in Switzerland, designed in the late 1930's. Since it was always intended to be a university, it was also intended to look like one. But nothing could have been further from the architect's thoughts than that it should be seen in terms of a "figure of speech." And I suggest that what was true in the 1930's was also true in the 1750's when Jacques-François Blondel was writing his four great folio volumes of architectural criticism entitled *Architecture Française*. There is not a single metaphor or simile in the entire work; and he rarely found it necessary to describe one building by reference to another.

Consider, for example, his criticism of Le Vau's Collège des quatres Nations.[2] The problem was unique in that the site was not only irregular, but faced the south facade of the royal palace of the Louvre. The problem was therefore not simply one of relating form to function, but of relating it to the most dominant civic monument in Paris—a monument which, in fact, was then in the course of completion by the same architect.

Its chapel is unusual in that although the dome is oval internally, it is circular externally. The architectural problems of reconciling these two shapes are obvious, and close analysis of the program indicates why the problem arose.[3] But whereas Anthony Blunt had nothing more to say about the entire building than that "the domed church flanked with wings curving forward combines motives from Pietro da Cortona and Borromini,"[4] Blondel discussed its shape, details, proportions and general visual effects without reference to

any other building whatsoever, but solely on the basis of general principles, or with reference to the character which such architectural compositions should "announce."[5]

It will be obvious that this word "announce" already implied a linguistic analogy. The idea is of course as old as Vitruvius, and derives from Greek sources which Vitruvius himself consulted. But it may well be that J. F. Blondel was the first theorist to go on to assert that good architecture is analogous to poetry. In his lecture-courses given during the following two decades, he specifically claimed that the appropriate expression of function constituted the "poetry of architecture."[6] He himself naturally illustrated this concept by referring to buildings by other architects; but it will be permissible for us to consider his theory by reference to a building which he himself designed. This is the *corps-de-garde*, or garrison headquarters at the focal point of the main plaza in Metz. Blondel was responsible for the whole of this urban renewal project, which included a new city hall on the south side and incorporated the medieval cathedral on the north. He was obviously attempting to give this building a military character, yet without detracting from the civic and ecclesiastical environment of which it formed a part. No "classical orders," as we would understand the term nowadays, were explicitly used. Instead, reliance was placed on the emphatic rustication of the basement storey, and the austere proportions of the fenestration. The only reference to the function of the building which did not derive from its proportion and profiling was the sculptural decoration of the pediment, which specifically proclaimed its military character by means of the unequivocal iconographic symbolism familiar to everyone in that age.

In an era which could not conceive of architecture other than as a continuation of the artistic legacy of Greece or Rome, it was inevitable that Blondel should have considered "poetry" and "style" to be virtually synonymous. For him, style in architecture was like style in eloquence. "In architecture, as in literature," he wrote, "a simple style is preferable to an inflated style."[7] This doctrine was a commonplace in the literary theory of the age. But the next generation of architects—men like Etienne-Louis Boullée—were to show a marked predilection for "the inflated style" in terms of scale, even though they ostensibly, and indeed ostentatiously, opted for extreme simplicity in terms of shape.

Boullée's theories have been so well publicized in recent years that there is no need to quote any of his numerous references to "the poetry of architecture" found in his manuscript treatise.[8] But the "poetry" to which he alluded was not so much an analogy with language as with easel-painting. It was the ancient doctrine summarized by the latin maxim: *ut pictura poesis*. He sought an architecture which would have the

Garrison Headquarters—Elevation
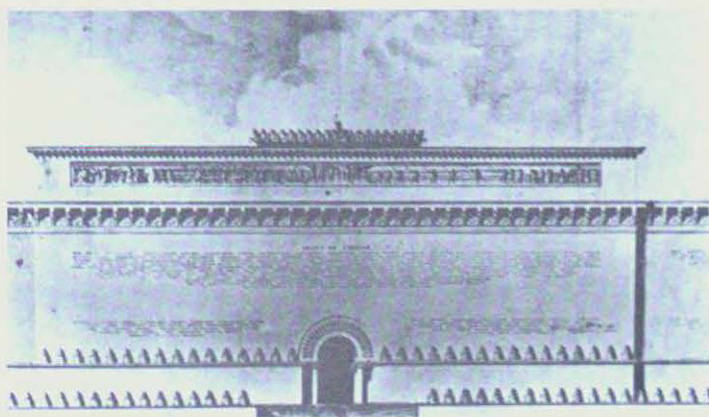
Boullée: Assemblée Nationale—Elevation

Auguste Perret: Nôtre Dame, Le Raincy—detail

qualities he admired, and envied, in the works of such painters as Hubert Robert.

His ideals had thus little in common with those of Blondel. For whereas Blondel considered that the poetry of architecture derived from each building's individual expression of function, Boullée, being obsessed with the metaphysical virtues of Plato's five basic geometrical solids, gave primacy to form; and there is something almost pathetic in his search for appropriate titles to attach to each of his huge hollow pyramids and unconstructable spheres. His most famous design is his "cenotaph to Newton," whose body then lay (as it still does) in Westminster Abbey, but was presumably to be transported to France, solely to give meaning to his graphic abstractions.

Even his designs for more practical public buildings, such as the parliament for the new French revolutionary regime, designed in 1792, show little imaginative grasp of either the real or expressive function of such buildings. The plan of his parliament building is just a symmetrical assemblage of rectangles around a circle: and one only has to compare it with Barry's Palace of Westminster, designed forty years later, to appreciate Boullée's poverty of invention. The immense blank facades—of a type which Blondel considered appropriate only for prisons—could only be made to express legislative function by anticipating Venturi's Lesson of Las Vegas. It was in fact designed as a vast bill-board, with the complete text of the Declaration of the Rights of Man incised on its surface like the inscription on a Brobdingnagian tombstone. Far from being analogous to language, the facade literally *was* language, and nothing more than language. It was the neutral support for a written message which Boullée would have inscribed in neon lighting had he known how.

In more recent years, the same dilemma was dealt with in an identical manner by Warren Perry when he designed the Berkeley Law School. The text on the facade consists of two eloquent passages from the writings of Chief Justice Benjamin Cardozo; extracts from a lecture which he delivered at Yale in 1921. The lettering is as elegantly arranged, and as typographically impeccable, as the prose it transcribes. But it can only be read by persons standing close. When seen from a distance it is sufficiently illegible to be classifiable as abstract ornament, and no doubt this is the effect which the architect (who was then Dean of Architecture at Berkeley) intended.

After Boullée's death, the third heuristic phase in the development of the linguistic analogy was inaugurated by J. N. L. Durand, whose use of it was influenced by the fact that he had to teach the rudiments of architecture to students of engineering. Durand's method was diametrically opposed to that of Boullée, even though superficially the resulting compositional designs of his students had much in common. For whereas Boullée was concerned only with the total effect, Durand was primarily concerned with the assembly of component parts. To quote his own definition: "The component elements of architecture (that is to say columns, beams, walls, windows, and so on) are to architecture what words are to discourse, and what notes are to music."[9] His fondness for the word "architectonic" suggests that he may owe a debt to Emmanuel Kant, who gave the penultimate chapter of his *Critique of Pure Reason* the title: "The Architectonics of Pure Reason."

Forty years later the whole attitude towards the linguistic analogy had changed. The professional architectural theorists of the classical era were rapidly being swamped by romantic enthusiastic amateurs who, though frequently possessing immense intellectual ability, had little pratical experience of building, but simply enjoyed talking about it. Ruskin's influence was the most insidious. Being deeply sensitive to the poetic qualities of all visual phenomena, he perceived no basic difference between nature and architecture. In so far as he found similar beauty in both, it was the transient everchanging beauty of irregular and erratic shapes which most powerfully excited his oratorical gifts.

His description of the Rhine Falls at Schaffhausen—that diminutive Swiss equivalent of Niagara Falls—is full of allusions to vaults, arches and domes; and to precious marbles with melodious names, such as chrysophrase.[10] Moreover, there are enough metaphors and similes in this text to satisfy even the most garrulous professors of English literature and literary criticism. But Ruskin's literary techniques for describing natural phenomena carried over into his architectural criticisms, whereby St. Mark's Venice is described less as a building assembled by the hands of men, than as a marvelous manifestation of the work of God. [11]

In fairness to Ruskin, it should be emphasized that this famous description, comprising a single sentence of over four hundred words, contains far fewer metaphors and similes than might be expected. Moreover, there is very little ambiguity in any of them. Perhaps the magic of his architectural prose resides precisely in the accuracy of his terminology: in his meticulous choice of descriptive words which are totally convincing because they are never whimsical or far-fetched.

But whatever the merits of Ruskin's imagery, the fact remains that for him, the eloquence of a facade derived solely from its sculptural details and mosaics. James Fergusson argued in his book *The Principles of Beauty in Art* (which was published in the same year as the *Seven Lamps of Architecture*) that eloquence, poetry and drama were the highest forms of art, and that the only aspect of architecture which could similarily be classified as "phonetic" (to use his own terminology) was ornamentation.[12] But it was precisely this which, for Ruskin, distinguished architecture from ordinary building. The facade of St. Mark's is indubitably a masterpiece. But what makes it absolutely unique is that no two pairs of capitals are alike. It had been assembled gradually, over a period of five hundred years, out of miscellaneous fragments looted from the ruins of Byzantium.

The colonnade of the tempietto at San Pietro in Montorio was also made of looted fragments: in this instance, recycled corinthian shafts, recuperated from antique ruins, were cut down to the proportions appropriate for a Doric entablature. But for Ruskin, such buildings posessed no poetic eloquence whatsoever; and he consistently ridiculed what he called their "mechanical repetition."[13] Comparing the effect

of romanesque and byzantine work with designs such as these, the former were, he wrote, "like that of poetry well read and deeply felt to that of the same verses jangled by rote. There are many to whom the difference is imperceptible," he said, "but to those who love poetry it is everything—they had rather not hear it at all than hear it ill read."[14] For Ruskin, as for Jacques-François Blondel, architecture was not analogous to a text which needed to be read: it actually talked: but whereas Blondel's architecture spoke in accordance with the classical rules of syntax and decorum, Ruskin considered that the principal defect of the Renaissance theorists was that "They discovered suddenly that the world, for ten centuries, had been living in an ungrammatical manner, and they made it forthwith the end of human existence to be grammatical."[15]

Ruskin's early hostility to traditional architectural rules and to constructional standardization demonstrates most clearly his incomprehension of how buildings are actually designed and how they achieve their stability. Whether his prejudices were justified by aesthetic, sociological or religious rationalizations, picturesque variety was for him the spice of life. Eccentric arcades such as those adorning San Michele at Lucca, were for him the quintessence of architectural poetry; and his concept of "The Lamp of Sacrifice" was not a call for restraint but for profusion. Anticipating current theories of Structural Linguistics, he demonstrated that linear ornament can, by careful verbal dissection of its symbolism, be seen as ornament "in depth"; as an *écriture* capable of rendering the riches of its poetic vitality to anyone with sufficient patience and education to examine each component fragment, and uncover the subconscious motives which activated the sculptor's chisel. For Ruskin, the standardized polychrome columns in the gardens at Versailles, and the sculptural panels which adorn its remarkable three dimensional arches, were unworthy of serious attention. "Mechanical" and "Pagan," they were for him what, in Structuralist terms, would be called "*écriture degré zéro.*"[16]

Nevertheless, whether we like it or not, today's architecture, like that of the Renaissance, is an architecture of standardization. But whereas, in the seventeenth and eighteenth centuries, the distinction between temporary structures and permanent stuctures was clearly understood, today this distinction has become so blurred as to be virtually nonexistent. Paint and plywood architecture are no longer images of future buildings, but the buildings themselves. When photographed in full colour, they need only be published to become historical monuments.

There is nothing new in lathe and plaster facades, such as that erected for the ceremonial inauguration of Soufflot's church of Ste. Geneviève in Paris. But these are regarded by us as architecture because they were ultimately replaced by a permanent structure of solid stone, and only the inscription on the frieze had in fact changed.

The lesson of the Paris Panthéon, unlike the lesson of Las Vegas, is that real architecture persists, however frequently we change the writing on the wall.

It seems to me therefore that the linguistic analogy can only become effective again for architects by reaffirming its heuristic potentiality, and treating its affinity with literature with great circumspection. The French system of *explications de texte* was originally intended to teach people how to *write* more clearly and effectively. The current emphasis seems to be concerned mainly with teaching them how to *read*. The contribution of Structural Linguistics to a general theory of spontaneous generation may well be enormous. But architectural design is not concerned with transforming things into words or old words into new words; it is concerned with transforming words into things: with transforming the total program into graphic images which eventually become the working drawings of an executed building. This transformation must always derive essentially from some theory of architecture. I believe whole-heartedly that there is such a thing as a theory of architecture, and also that the history and criticism of architecture are closely related. But the three are nevertheless separate disciplines.

In conclusion, I should like to comment on a curious oversight in Charles Jencks' analysis of pre-cast concrete grills. What seems most strange to me is not that he disregards their true origin in Perret's church at Le Raincy, designed in 1922: it is that he seems to have been unaware that these elements were "analogies" in the current "structural linguistic" sense—that is to say, in the sense defined by the progenitor of all modern structural linguistic research: Ferdinand de Saussure.

De Saussure devotes two chapters to "analogies" in his *Cours de Linguistique Générale;* and in these chapters, he places particular emphasis on the creative and generative role which analogies have played in the history of language. The general theme of these chapters is that many new words and grammatical forms were often created or generated analogically in imitation of other word-forms, rather than in accordance with internally logical linguistic rules.

But it was precisely by this process of analogy that Auguste Perret's pre-cast concrete elements evolved in the 1920's. In his search for an appropriate fenestration system for his new church at Le Raincy, he eventually decided to constitute a screen of pre-cast components and to design each element by analogy with the pierced marble panels used by the ancient Romans within the apertures of thermae halls. Indeed, he took specific care to denote these novel elements by the latin name of their prototypes: *claustra*, since (unlike Le Corbusier and Gropius) he experienced no shame in acknowledging his debt to the dead forms of the past.

This kind of analogy is probably inevitable when new structural or functional systems are being initially developed, and need architectural expression. But no analogies or metaphors, however scintillating in their wit, will stimulate the evolution of a genuine contemporary architecture if they derive only superficially, and without genuine cause, from theories of literary criticism.

As Fowler points out in his classic reference book on *Modern English Usage*, there is a clear and well-defined distinction between analogies used as a logical resource—that is to say heuristically—and analogies used as an influence on word-creation. It is possible that both types of analogy need to be studied, but architectural theory will never benefit from the current tendency to confuse the two.

NOTES:
1. C. Jencks: *Language of Post-Modern Architecture* , p.40.
2. J. F. Blondel: *Architecture Françoise* , Bk. iii, pp. 4-6.
3. Ibid, p.6, & *Cours d'Architecture* , Vol. 4, p. lxviii, etc.
4. A. Blunt: *Art and Architecture in France* , p. 230.
5. J. F. Blondel: *Cours d'Architecture*, Vol. 2, pp. 229 ff.
6. Ibid, Vol. 4, p. lv.
7. Ibid, Vol. 4, p. lvi.
8. E. L. Boullée: Manuscript, p. 70 (H. Rosenau transcript p. 26).
9. J. N. L. Durand: *Précis de Cours*, (1813 ed.), pp. 29-30.
10. J. Ruskin: *Modern Painters* (1851 ed.), p. 344.
11. J. Ruskin: *Stones of Venice* (1880 ed.), Vol. ii, pp. 67-68.
12. Op. cit. (1849 ed.), p. 121.
13. J. Ruskin: *Seven Lamps of Architecture*, ch. 5 passim.
14. Ibid, ch. 5, para. XXI.
15. J. Ruskin: *Stones of Venice* (1880 ed.), Vol. iii, p. 55.
16. R. Barthes: *Le degré zéro de l'écriture* (1953).

PARALLAX

Those architects who base their theory of architecture on Sigfried Giedion's analysis of its modern developments (and this, I suspect, is tantamount to saying all architects under forty) will doubtless be so used to the idea that Space-Time is an essential element of contemporary architecture that they may consider it an impertinence to enquire whether, outside the realm of astronomy and nuclear physics, the term means anything at all. Giedion himself is curiously vague about the precise way this new space concept operates. Part VI of *Space, Time and Architecture* is called "Space-Time in Art, Architecture and Construction," and its first chapter is called "The New Space Conception, Space-Time." Yet in this first chapter, the hyphenated word does not occur at all, whilst in the remaining eighty pages of Part VI, it occurs only four times, namely with reference to the three famous buildings and one famous project in which its characteristics are apparently to be discerned.

Paul Rudolph believes that the concept of Space-Time has been the motivating force behind much of the International Style, and that in the hands of a great man, this concept can be immensely successsful.[1] On the other hand, John Burchard and Albert Bush-Brown contend that even the serious efforts of Giedion have been unable to build believable connections between Gropius's *Werkbund* building at Cologne and the recondite Space-Time of Einstein.[2] It seems worth enquiring, therefore, what Space-Time really does signify in terms of architecture, and whether, if it means anything, the meaning could be more accurately expressed in simpler terms. This enquiry aims neither at philological hair-splitting nor at substituting one catchword for another. Its purpose is to give a clearer idea of what the fundamental aesthetic nature of contemporary architecture is, whereby it can be more accurately studied and its future possibilities more effectively explored.

One difficulty of analysing the implications of Space-Time in architecture is that it seems to mean different things to those who use it. In some passages it evidently means "related to Einstein's theory of relativity," whilst in other it seems to mean only "related to *avant-garde* paintings of the 1910's and 1920's." Sometimes it is used as a synonym for "four-dimensional," sometimes as the equivalent of "non-Euclidian geometry," and on at least one occasion it is used to explain the architectural signifiance of Zen Buddhism. I propose to look briefly into each of these various meanings in an attempt to isolate those ideas which have some application to architectural design.

Firstly, we can, as Burchard and Bush-Brown rightly observe, dismiss as an illusion any idea that using the words "Space-Time" establishes a firm analogy with Relativity. Indeed, Giedion in one instance seems to dismiss this relationship himself as a "temporal coincidence."[3] However inspiring the announcement of Einstein's initial theory must have been to painters and writers when it was published in 1905, and however exhilarating his startling experimental proof of the final theory (published a decade later) must have been in 1919, the fact is that neither had anything to do with the kind of space that painters, sculptors and architects are involved with, but were a development of the algebraic techniques of analytical geometry, extended to solve problems in dynamics. Moreover, although Einstein's general theory of relativity (which is concerned with accelerated motion) involves non-Euclidian geometry, his "special" theory of relativity (which is concerned with uniform velocity) does not.

It is clear therefore that when Giedion talks about non-Euclidian geometry as if Euclidian geometry were limited to three dimensions,[4] and claims that "like the scientist, the artist has come to recognize that classic conceptions of space and volume are limited and one-sided,"[5] or that "the essence of space as it is conceived today is its many-sideness,"[6] he is not talking about anything which would have been intelligible to Einstein; for Einstein never claimed that space was many-sided, or that "in order to grasp the true nature of space the observer must project himself through it." On the contrary, it was precisely because of the impossibility of measuring our absolute velocity through space that he engaged upon his famous research. His great feat was to demonstrate why it was that the true nature of space was not apparent to observers moving through it, and the truths he enunciated were more to the effect that problems of measurement involving mass and light are not so much a matter of geometry as a matter of history. "The past," wrote R. G. Collingwood

in his *Philosophy of History*, "consisting of particular events in space and time which are no longer happening, cannot be apprehended by mathematical thinking because mathematical thinking apprehends objects that have no special location in space and time, and it is just that lack of peculiar spatio-temporal location that makes them knowable."[7] Einstein's theory may, without unduly broadening the meaning of "history," be said to constitute the ultimate extension of historicism[8] to our interpretation of nature by relating it to astronomy and nuclear physics.

In such circumstances one would not expect to find any detailed explanation of the Space-Time qualities of modern architecture in Einstein's own writings, but he makes one remark in his introduction to Max Jammer's *Concepts of Space* which provides a useful clue as to his own ideas concerning the relationship between architecture and space. "Now as to the concept of space," he wrote, "it seems that this was preceded by the psychologically simpler concept of place. Place is first of all a small portion of the earth's surface identifiable by a name...a sort of order of material objects and nothing else."[9] Now this is precisely the kind of space involved in architectural design, as one might contend that a "place" (plaza, piazza) is the largest space that an architect is able to deal with as a unified work of art.

Closely related to the analogy with Einstein's theory of relativity is the notion that modern architecture is characterized by its use of a fourth dimension. "The fourth dimension," wrote Le Corbusier in *New World of Space*, "is the moment of limitless escape evoked by an exceptionally just consonance of the plastic means employed,"[10] and whatever this may mean exactly, it is obviously related to Giedion's notion that the "fourth dimension" enables us not merely, like the Cubists, to depict the world in a new way, but to *see* it in a new way. The four-century old habit of seeing the outer world in terms of three dimensions, Giedion tells us, rooted itself so deeply in the human mind that until quite recently no other form of perception could be imagined. "No wonder," he concludes, "that the modern way of seeing the world in terms of four dimensions should be so difficult to comprehend."[11]

Now "fourth-dimensional" in architecture presumably means time considered as a measure of displacement, and since buildings do not move (although Moholy-Nagy defined Space-Time architecture in terms of automobiles, trains and trailers),[12] the "fourth-dimensional" component must necessarily be contributed by the observer. Yet Giedion states not only that to appreciate a Space-Time structure in it's entirety one must move through it and around it; he also states that one can appreciate both the inside and outside simultaneously by staying in the same place—a seemingly contradictory distinction which depends in fact on the extent to which the structure is sheathed in plates of glass.

According to Giedion, it is impossible to comprehend Le Corbusier's Maison Savoye by a view from a single point, since "quite literally," he says, "it is a construction in Space-Time. The body of the house has been hollowed out in every direction—from above and below, within and without—so that a cross-section at any point shows inner and outer space penetrating each other inextricably, in a way which Borromini had been on the verge of achieving in some of his late Baroque churches."[13] Le Corbusier gives much the same interpretation of it, although he does not use the expression Space-Time, and considers that his building exemplifies the exact opposite of Baroque principles (which, according to him, produced an architecture conceived on paper around a fixed theoretical point). Moreover, far from considering his own principles exclusively modern, he derives them from Arab architecture. "Arab architecture gives us an invaluable lesson. It is appreciated *whilst walking*, and it is only thus, while moving around, that the observer sees the architectural dispositions develop."[14]

Giedion's other great Space-Time paradigm, the Bauhaus, is also, according to him, too complex to be summed up at one view, so that it is necessary here again to go around it on all sides, to see it from above as well as below. This means, he says, new dimensions for the artistic imagination; "an unprecedented many-sidedness." But for him, the specific Space-Time quality of the building is attributable to the fact that the extensive transparency permits interior and exterior to be seen simultaneously *en face* and *en profile* "like Picasso's *L'Arlésienne* of 1911-12."[15]

Perhaps, then, Giedion's views might be summarized by saying: modern architecture is characterized by the fact that the inside of a modern building can often be appreciated from single external viewpoints, and the external totality of a modern building can only be appreciated as a sequence of visual impressions. If this is so, it is the converse of what occurs when one looks at traditional buildings of similar purpose; for in a typical Renaissance villa comparable to the Maison Savoye, the totality of the outside of the building is intelligible from a single viewpoint (because of the axial symmetry), whereas the interior can only be appreciated as a sequence of visual impressions obtained by moving from room to room. But "fourth-dimensional" does not, for Giedion, simply refer to the movement of an observer. In an introductory passage, he makes clear that he regards it as evidence of the evolution of art. The Renaissance manner of seeing the world three-dimensionally, he tells us, was an important step forward, because the art of previous centuries had been two-dimensional. Thus our contemporary four-dimensional vision is in one sense revolutionary, but in another sense it is simply an inevitable advance in the evolutionary progress of civilization.[16]

Disregarding the question whether all the art of pre-Renaissance cultures really was in fact two-dimensional, whether even painting was then two-dimensional, and whether, for example, a mediaeval Italian painting depicting the same person participating in several sequential events on the same panel is to be called two dimensional, three dimensional or four-dimensional;[17] disregarding also the logical extension of Giedion's theory which would seem to imply that the next development of art is to become five-dimensional, then six-dimensional (as in the dynamic theory of gases) until eventually it becomes *n*-dimensional; it is surely enough to say that this evolutionary theory is only possible if one considers the *creation* of space to be indistinguishable from the *depiction* of space. That painters have found new ways of "conquering" space, first by mastering perspective and then by discovering techniques for producing the illusion of infinity, is a matter of common knowledge. But to suggest that architects before 1400 actually *created* only two-dimensional architecture, in the way that between 1500 and 1750 they were creating three-dimensional architecture, and that the Baroque heralded the creation of four-dimensional architecture, is to divest the words of any real tectonic meaning, and nobody except Moholy-Nagy has ever been rash enough to try to demonstrate the theory by reference to historical examples. He illustrates the theory by asking us to believe that Egyptian architecture was "one-dimensional" because their temples could be comprehended by walking

through the sphinx alley leading towards its façade; that Greek architecture was "two-dimensional" because the architects of the Acropolis designed a two-dimensional approach to "the temple;" and that the spectator inside a Gothic cathedral became the centre of co-ordinated space cells of all directions, whilst the Renaissance and the Baroque brought man into closer contact with the inside and the outside of its buildings. "In our age of airplanes," he concludes, "architecture is viewed not only frontally and from the sides, but also from above—vision in motion;"[18] i.e. Space-Time.

The interpretation of architecture in terms of space was initially a contribution of German philosophers, and it goes back at least to the beginning of the nineteenth century.[19] But the influential disseminators of this idea were the late ninteenth-century German art-historians, and it is significant that when Wölfflin (from whom Giedion derived his basic ideas about the primacy of space in art-historical analysis) discusses architectural space most eloquently, it is with reference to the *painting* of an architectural interior, rather than to an architectural interior itself. Altdorfer's early sixteenth-century painting of the birth of the Virgin, he tells us, characterizes well the fundamental difference between the German and Italian conceptions of space, since here "space is undefined and in motion," whereas with Brunelleschi all forms are defined and distinct. In Altdorfer's interior, he continues, the nave and aisles flow into one another, "and what is more, a rotating, whirling movement throws the entire space into a turmoil." The church's ground plan remains intentionally unclear, and the painting, he therefore concludes, compensates for the completeness of the diverse views offered to the spectator wandering on the spot "by transforming finite into infinite form."[20]

When Wölfflin discusses Baroque interiors, his descriptions are almost indistinguishable from Giedion's description of the Space-Time experience of the Maison Savoye. "We move round them," he writes, "because in the intersections new pictures constantly arise. The goal cannot lie in a final revelation of the intersected form—that is not even desired—but in the perception, from as many sides as possible, of the potentially existing views."[21]

Nevertheless, Giedion's interpretation of Baroque clearly differs from Wölfflin's in that Giedion sees Baroque only as the anticipation of Space-Time, and I suspect that the immediate source of Giedion's theory is to be found not in Wölfflin's lectures or Einstein's theory, but in an extremely influential and popular German book which appeared in 1918, when Giedion was a student in Munich, namely Spengler's *Decline of the West*. If specific evidence were required to demonstrate Spengler's influence on Giedion, it could be adduced by the term "Faustian," that most Spenglerian of expressions, which occurs in *Space, Time and Architecture* on page 525, with reference to the League of Nations competition. But for readers of Giedion, nothing could be more conclusive than the following quotation from *Decline of the West*:

The temple of Poseidon at Paestum and the Minster at Ulm... differ precisely as the Euclidian geometry of bodily bounding-surfaces differs from the analytical geometry of the position of points in space referred to spatial axes. All Classical building begins from the outside, all Western from the inside...There is one and only one soul, the Faustian, that craves for a style which drives through walls into the limitless universe of space, and makes both the exterior and the interior of the building complementary images of one and the same world-feeling...The Faustian building has a visage, and not merely a façade.[22]

"Faustian" might be an appropriate substitute for the increasingly unpopular word "International" as a stylistic identification of twentieth-century architecture, but regardless of "style," I would suggest that in fact the visual effects usually referred to as Space-Time, Fourth-Dimensional, and so on, are nothing more or less than modern developments of the exploitation of effects of parallax. The phenomenon of parallax (whereby an apparent displacement of objects occurs when the point of observation changes) is also, like Space-Time, a device for astronomical measurement, but unlike Space-Time it has always been an important element of architectural composition, and has been manifest in architecture ever since the first hypostyle hall was constructed. It occurs in every large space containing rows of free-standing columns, and must have produced particularly striking effects in the great mediaeval churches and halls when these were also subdivided by low screens, or spanned by deep hammer-beam roofs.

The aesthetic revolution which has occured in architecture within the last century has consisted firstly in the reversal of the traditional method of exploiting parallax, and secondly in its extension by means of a greater use of cantilevers and glass. Reversal of the traditional method is best exemplified in Le Corbusier's work, and it is probably this which relates it so closely to Cubism; for, as Sir John Summerson has observed, "Just as Picasso's work is, as he has said, a sum of destructions, so, in a sense, is Le Corbusier's; for to him the obvious solution of a problem cannot possibly be the right solution...he sees the reverse logic of every situation."[23] Extension of the traditional method is best exemplified in the works of Gropius, and particularly of Mies van der Rohe, that greatest of all pioneers of modern parallax, whom Giedion, with regard to Space-Time, completely neglects. But all the leading architects of the century have exploited it to some extent, whether it be Frank Lloyd Wright's use of large balconies or free-standing mushroom columns, or even Perret's emphasis on isolating point supports. Its most striking development today is in the use of high towers which change their apparent relationship as one moves round the building, as introduced by Louis Kahn.

By the reversal of traditional methods of parallax, I mean the fact that until the present century, parallactic effects were usually visible in large covered spaces because of the need for intermediate supports, whereas nowadays technology seems to have imposed a moral obligation to roof even the largest areas as uninterrupted volumes. Conversely, whereas formerly buildings containing a number of rooms produced no effects of parallax within their sequence of prismatic enclosures, all subdivided spaces now tend to be treated as if they were converted hypostyle halls. By the extension of parallax, I mean that modern structural systems have removed any compulsion to make structural space-articulators symmetrical, whilst recent developments in glass-making and in heating and ventilation have allowed the same tectonic elements to be visible in parallax both inside and out.

Giedion is clearly right in distinguishing between these new parallactic phenomena and the *trompe-l'oeil* spatial effects of the Baroque, since it was precisely the lack of parallactic displacement which hampered the illusion that Baroque pictorial effects were real. But he is wrong in implying that Baroque designers never did exploit parallax in a modern way, for it occurs in rococo interiors where large mirrors are placed symmetrically on opposite walls. According to Wölfflin, the beauty of a Rococo mirror hall differs from the beauty of a Renaissance interior (the ultimate effect of which lies, he says, in the geometric proportions) because one is intangible and the other tangible, and because one is imprecise

and the other clear.[24] But the main distinction is surely that in a rococo mirror hall, the architecture and the occupants are reflected to infinity by images which always remain in true perspective relative to each observer, no matter where they may move. Thus three-dimensional geometric proportions are extended further into space, whereas the aim of Baroque interior decorators was to destroy geometric proportions altogether by disrupting the volumes which unadorned architecture naturally creates.

It will be seen, then, that there was something very radical and important in the mid-eighteenth-century fondness for mirrored interiors, as there was also, by the same token, in their fondness for ruins (where interiors and exteriors also appear to be seen simultaneously). Both these features, often regarded as merely whimsical frivolities, were the aesthetic roots of modern architecture as it exists today. Indeed, some writers of the time seem even to have been dimly aware of the true signifiance of such effects, as when Robert Wood, describing the ruins of Palmyra in 1753, observed that "so great a number of Corinthian columns, mixed with so little wall or solid building, afforded a most romantic *variety of prospect*." The effect was undoubtedly exploited deliberately by Soufflot at Ste. Geneviève, for as Wolfgang Herrmann remarks, "While the visitor moves forward, the cluster of columns seems to move too, opening up constantly changing views"— an effect actually described by Soufflot's successor Brébion in a letter dated 1780.[25]

What is most strikingly novel about current attempts to exploit effects of parallax is that they are so often used without adequate regard for the needs of privacy, and that they are so often described in unnecessarily pompous terms. Phrases such as "continuity of space," "mobility of space," "expansion of space" and "over-lapping and tied-together space-volumes" are no doubt harmless justifications for an exceptionally lavish use of glass, yet when one of the great Rococo exponents described the new idea in 1737, he wrote simply that "the mirrors make a mutual reflection between each other, thus prolonging the view and producing a very pleasant effect."[26] It is difficult to see why anyone need say more than that.

Giedion's terminology will probably persist, whatever interpretation we give it, because of the modern credulous appetite for pseudo-scientific mumbo-jumbo; and the fact that it was used recently to explain traditional Japanese architecture and its relation to Zen Buddhism will occasion no surprise.[27] It is even to be found outside architectural writings, as for example in a recent periodical where, in an article entitled "A Study of Free-Time Activities of 200 Aged Persons," their Space-Time activities are carefully described.[28] Yet here, on close examination, it is apparent that "space-time activities" was simply a misprint for "spare-time activities," and one may perhaps be excused for wondering whether a similar typographical transposition has not occurred in one or two recent books on modern art.

NOTES:

1. *Canadian Architect*, March, 1959, p.65. The most recent thorough exposition of the relationship between Space-Time and the International Style occurs in William H. Jordy's article on the PSFS Building in the *Journal of the Society of Architectural Historians*, vol. xxi, No. 2, p. 75: "To ensure their dynamic, space-time equilibrium, Howe & Lescaze utilized the full range of space-time architectural devices. There is the extravagant transparency of sheets of glass extending the here beyond. There are open forms, like the cantilevers and the abrupt termination of the projecting columns short of the parapet at rooftop, there are continuities where one might expect breaks, like the windows bent and folded around corners. There are interpenetrations and interlockings. There are violent juxtapositions wrenching the eye from one shape to another. Finally, there is the intrinsic lack of interest and articulation of the unembellished parts which encourage the eye to abandon the part for the ensemble.'
2. J. Burchard and A. Bush-Brown, *The Architecture of America*, pp. 317, 429.
3. S. Giedion, *Space, Time and Architecture* (1956 ed.), p. 432.
4. *Ibid.*, p.431.
5. *Ibid.*
6. *Ibid.*, p. 432.
7. *Op. cit.* (1956 ed.), p. 5.
8. Cf. previous article in AR, August, 1960, p. 101.
9. *Op. cit.*, p. xiii.
10. *Op. cit.*, p. 8.
11. S. Giedion, *Ibid.*, p. 431.
12. L. Moholy-Nagy, *Vision in motion*, p. 256.
13. S. Giedion, *Ibid.*, pp. 518-9.
14. Le Corbusier, *Oeuvre complète de 1929-1934*, p. 24.
15. S. Giedion, *Ibid.*, p. 489.
16. *Ibid.*, p. 431.
17. Cf. P. A. Michelis, in *Journal of Aesthetics and Art Criticism*, viii, pp. 71-86.
18. L. Moholy-Nagy, *Ibid.*, p. 244.
19. Cf. Hegel's *Philosophy of art* (1920 ed.), pp.91-7.
20. H. Wölfflin, *The Sense of Form in Art* (1958 ed.), p. 67.
21. H. Wölfflin, *Principles of Art History* (Dover ed., n.d.), p. 223.
22. O. Spengler, *Decline of the West* (1926 ed.), p.224.
23. J. Summerson, *Heavenly Mansions*, p. 189.
24. H. Wölfflin, *Ibid.*, p. 223.
25. W. Herrmann, *Laugier*, p. 121 and footnote 72.
26. J. F. Blondel, *Décoration des Maisons de Plaisance*, i, p. 27.
27. N. H. Carver, *Form and Space of Japanese Architecture*, p. 130.
28. *Sociology and Social Research*, xiv, p. 157.

RETREAT FROM
THE BLEAKNESS WITHIN

Everybody, as Reyner Banham once pointed out, knows that Modern Architecture is undecorated. This concept is the layman's recognition check: flat roof, big windows, no decoration. It originated in 1908 with Adolf Loos' manifesto declaring ornament to be a crime, established itself rapidly as a matter of faith, and has now been so widely accepted for a quarter of a century that there seems little point in trying to repudiate it. Architects stopped designing ornament, craftsmen stopped making it, to such an extent that few could now produce it even if they tried.

Two typical recent examples of undecorated non-domestic interiors by distinguished American architects are the vestibule of 500 Park Avenue, New York (the new headquarters for the Pepsi-Cola Corporation), by Skidmore, Owings and Merrill, and the vestibule of the Kalita Humphreys Theatre at Dallas, Texas, by Frank Lloyd Wright. Wright, from an early age, showed an incomparable genius for creating dramatically proportioned and subtly related interiors, but his chief skill always lay in his ability to subdivide and adorn them with decorative elements of delicately calculated richness and scale. It was perhaps this skill which he inherited specifically from the teaching of Louis Sullivan. Unlike Sullivan, he never built and decorated a large theatre during his lifetime (the Dallas Theatre being in fact completed after his death), but anyone who has studied the interiors of his famous houses built during the first quarter of the present century, or the vestibule of his Tokyo hotel, can well imagine what such a theatre, built by him at that time, would have looked like. The walls and ceilings would have been vigorously modelled, and the surfaces, richly textured with abstract geometric patterns, would have combined with the whole to form an environment of incomparable splendour in complete harmony with human scale and mood.

There were doubtless many good reasons why his Dallas theatre was left so plain, but no one will deny that it is completely barren, and the bunch of flowers on the table only draws attention to the poverty of the surrounding design. The director claims that "Frank Lloyd Wright intended here to excite the viewer with anticipation of the dramatic experience inside," yet whilst it might conceivably do this for some plays, it is unlikely to excite much anticipation for Oscar Wilde's *Importance of Being Earnest*, which is currently being performed. Perhaps modern architecture is itself too much concerned with the importance of being earnest, and in its puritanical pursuit of a new morality is becoming completely unsympathetic to any rich visual experience except those constituted by variations of light and space.

The vestibule of the ten-storey Pepsi-Cola building might perhaps seem to trivial to instance as an example of this trend, but its architects have designed some of the finest office buildings in North America, and its qualities are very characteristic of what passes for "prestige architecture" in North America today. The exclusive use of glass or plain marble slabs for walling shows a clear influence of Mies van der Rohe. The determination to leave the street level quite bare (and thus simulate a building mounted on stilts) shows a clear influence of Le Corbusier. But despite the many fine qualities of the rest of the building, the vestibule itself is so bleak as to be almost a caricature of modern architecture, reminiscent of the décor of Jacques Tati's film *Mon Oncle*. This vestibule has been characterized by one critic as "chaste," but a more appropriate word might be "sterile." Presumably the ground floor, which may eventually be used for occasional non-commercial exhibitions, was left empty to give the "prestige" by its sheer extravagance. But the owners, whether appalled by the ludicrousness of this vast hall occupied only by a single uniformed attendant, or awe-struck by it sepulchral nudity, have subsequently decided to cover the entire floor with flowers, and thus made the giant advertisement appear to be lying in state.

The lobbies of most office buildings and theatres built at the beginning of the century undoubtedly were, like the many domestic interiors of the period, poorly lit and over-ornate; but they presumably corresponded to some extent to a natural craving for the visual enjoyment of richness which, for centuries, has been regarded by most people as one of the legitimate fruits of wealth. When Owen Jones wrote the first chapter of his famous *Grammar of Ornament* in 1856, he claimed that "the desire for ornament increases with all peoples in the ratio of progress in civilization," and there was little sympathy at that time for Horatio Greenough's view that

Frank Lloyd Wright: Kalita Theater, Dallas—Lobby

ornament was merely "the instinctive effort of an infant civilization to disguise its incompetence." It was natural, in an age of plenty, when mediaeval and Renaissance culture was so much admired, that Greenough's assertion should pass unheeded, just as it was natural, sixty-five years later, for a generation recovering from the catastrophe of the First World War to accept Le Corbusier's assertion that "decoration is the essential overplus, the quantum, of the peasant; proportion is the essential overplus, the quantum, of the civilized man." But we are living in a new age of plenty, when austerity no longer has much moral justification, and it may well be that under such conditions Owen Jones' contention was not entirely wrong.

I am not suggesting that there would be any justification for reviving the kind of interior popular in the second half of the nineteenth century (and which Owen Jones himself was one of the first to condemn): but I do suggest that architects here and elsewhere will have to design their structures with more concern as to their potentiality in terms of interior elegance if they are to retain public respect. At present, the walls of an entrance vestibule, however important or luxurious, can be fashionably designed only with plain sheets of glass, plain sheets of marble, or abstract murals (which in recent New York examples have ranged from two carefully drawn lozenges to a series of random holes illuminated by flickering coloured lights behind). The rhythms, patterns, and compartmentation of surfaces, which in earlier centuries gave human scale to interiors, have almost completely vanished, and the only real contribution made by the present generation to interior design is in the skilful exploitation of the effects of artificial light.

I believe that public is yearning for an architecture of humanism; not that pseudo-Renaissance humanism extolled by Geoffrey Scott and Henry Hope Reed (which is only meaningful in an age of masonry construction) but the humanism which accepts architecture as a composition of standard elements designed and assembled to accord with human scale. Frank Lloyd Wright knew and mastered better than anyone else of his generation the subtleties and intricacies of scale, but being at heart a nineteenth-century romantic, he rejected the standardization imposed by the industrial machine. Architects such as Skidmore, Owings and Merrill have industrial standardisation at their finger-tips, but their interiors too often reflect more the scale of machinery than of men. It was undoubtedly a great feat of engineering to include panes of glass at 500 Park Avenue measuring nine feet by thirteen feet ("enough glass to make 159,000 12-ounce Pepsi-Cola bottles"), but the main advantage of plate glass windows at street level is to allow passers-by to see something interesting within. With modern lighting, modern materials, and modern tools, rich interiors should surely not be impossible to achieve, and it is apparent from the wonderful creations of shop display designers that the potentialities for this sort of environment are enormous, once architects abandon their more austere spatial abstractions and think in terms of space as actively enjoyed by the common man.

The absence of ornament on the outside of buildings began as a reaction against its excessive use in the nineteenth century, but it only became general once architecture came under the baneful influence of abstract sculpture, for clearly nothing could be more alien to sculpture than ornament. The lavish ornamentation favoured in the nineteenth and early twentieth centuries was unquestionably symptomatic of a decline in the standards of taste, for architectural theorists of all ages have insisted that exterior ornament should be subordinated to structural elements, and regulated according to a building's social importance and use. But the complete absence of ornament inside public buildings seems to me very abnormal, and quite unjustifiable by ethical, practical or historical criteria. There may be evidence that the interior bleakness of most new American buildings corresponds to a spontaneous popular demand, but it seems more reasonable to attribute it to the sociological-architectural doctrines which have been propagated for the last half-century, and have shown, when put into effect, such marked indifference to the warmer inclinations of the humanity they claim to serve.

The pioneers of the "contemporary" interiors were Mies van der Rohe and Le Corbusier, both now famous as architects, but originally distinguished as an exhibition designer and a painter respectively. The ideal environment for exhibiting works of art is a series of simple interrelated
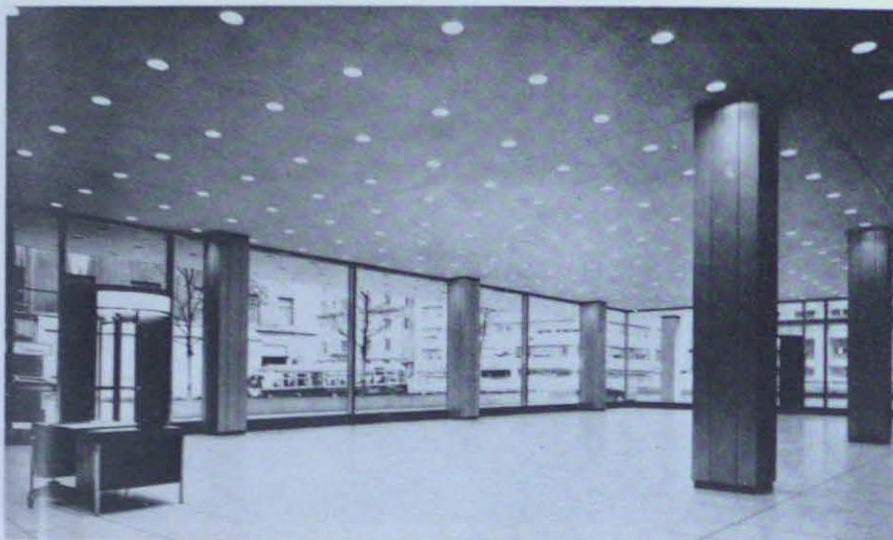
Pepsi-Cola Building—Lobby

spaces; the ideal environment for painting picture is a tall bare room with a large window occupying one wall. Both require plain surfaces to function efficiently; the former to allow artefacts of different character to be displayed together, the latter to allow artefacts to be created without any environmental influence at all. Neither would appear to be ideally suited to the habitation of human beings, unless of course one happens to be painter or an exhibition designer by temperament or profession.

The artist's studio, which became the paradigm for all Le Corbusier's interiors, and the exhibition pavilion, which became the paradigm for those of Mies van der Rohe, were well suited to the low cost housing developments which were the main concern of these designers, as architects, immediately after the First World War, but they proved less capable of satisfying the needs of an affluent society, such as is represented by Europe and America today. One only has to glance through current fashion magazines to see that the rich and sophisticated do not decorate their houses in the "contemporary" style unless they collect works of art, in which case their houses become miniature museums. Typical of these is the architect Eero Saarinen's residence, in which there is virtually nothing except pictures, sculpture, and the smooth fibreglass chairs ("antiques of modern architecture") he designed himself, and sits in with such an acute air of discomfort (whilst his wife and son sit on the floor). The walls and ceilings are flat white surfaces, and the ornamentation, for such it is, consists of intricate oriental sculpture mounted on pedestals, or brightly-patterned abstract paintings hanging on the walls. Little wonder that so many wealthy Americans furnish their dwellings with antiques, or that "reproduction Victorian furniture," which would have been inconceivable twenty years ago, is now in popular demand in the less expensive stores in New York.