RICE UNIVERSITY

THE DEVELOPMENT OF A QUESTION SET TO EVALUATE

THE EFFECTIVENESS OF BUILDINGS

by

Carl Landow

A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

MASTER IN ARCHITECTURE

Thesis Committee
Professor William Caudill, Director

Professor Jack Mitchell

Professor William Cannady

Houston, Texas

May, 1967
ABSTRACT

Thesis: The development of a question set to evaluate the effectiveness of buildings.

Architecture is for everybody. The question set is a starting point for those people who want to evaluate and appreciate buildings.

The question set is the end result of a searching process which included the examination of some historical influences which affected people's beliefs about architecture: The analysis of two buildings in Houston, Texas, and the development of a fundamental architectural theory.

The application of the question set to buildings in Houston, Texas, was tested by students in the School of Architecture, Rice University, and other interested friends.
TO ELKE
"These words are not truths but attempts toward orientation."

Rietveld
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Intended Audience</td>
<td>1</td>
</tr>
<tr>
<td>Statement of Problem and Approach</td>
<td>2</td>
</tr>
<tr>
<td>How Some Professional Critics Have Studied the Problem</td>
<td>5</td>
</tr>
<tr>
<td>II. SOME INFLUENCES WHICH HAVE AFFECTED MEN'S BELIEFS ABOUT ARCHITECTURE</td>
<td>10</td>
</tr>
<tr>
<td>Pre-industrialized America</td>
<td>12</td>
</tr>
<tr>
<td>Post-industrialized America</td>
<td>21</td>
</tr>
<tr>
<td>III. HOW FUNCTION INFLUENCES WHAT CAN BE PERCEIVED IN BUILDINGS</td>
<td>28</td>
</tr>
<tr>
<td>IV. HOW ECONOMY INFLUENCES WHAT CAN BE PERCEIVED IN BUILDINGS</td>
<td>37</td>
</tr>
<tr>
<td>V. HOW TIME INFLUENCES WHAT CAN BE PERCEIVED IN BUILDINGS</td>
<td>45</td>
</tr>
<tr>
<td>VI. HOW LOCATION INFLUENCES WHAT CAN BE PERCEIVED IN BUILDINGS</td>
<td>50</td>
</tr>
<tr>
<td>VII. HOW PEOPLE INFLUENCE WHAT CAN BE PERCEIVED IN BUILDINGS</td>
<td>55</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>VIII. WHAT CAN BE SEEN IN BUILDINGS THEMSELVES</td>
<td>60</td>
</tr>
<tr>
<td>IX. TWO BUILDINGS IN HOUSTON, TEXAS</td>
<td>80</td>
</tr>
<tr>
<td>St. Thomas: College</td>
<td>82</td>
</tr>
<tr>
<td>St. Barnabus: Church</td>
<td>97</td>
</tr>
<tr>
<td>X. DEMONSTRATION</td>
<td>112</td>
</tr>
<tr>
<td>Description and Purpose</td>
<td>112</td>
</tr>
<tr>
<td>Questions</td>
<td>116</td>
</tr>
<tr>
<td>Application of Questions</td>
<td>142</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>213</td>
</tr>
</tbody>
</table>
The diagram shows a hierarchy of evaluation criteria for the effectiveness of buildings. The hierarchy is represented as a pyramid with layers, each containing specific aspects:

1. **Theoric**
   - A question set to evaluate the effectiveness of buildings.
2. **Form**
3. **Function & Economy**
4. **Location & Time**
5. **Investigation & Analysis of Buildings**
6. **History**
CHAPTER I

MY INTENDED AUDIENCE

I would like to state some assumptions concerning the character of my intended audience. Even all of us who are enthusiastic about architecture usually respond to buildings first in terms of whether we like them or not. However, as Reyner Banham has said in a recent article, "It is no use looking at a building and saying, 'I don't like it personally.' It is not enough to say just that. An opinion must be justified. A great number of plausible building solutions have gotten lost in the rush simply because people did not like the looks of them."¹

William Caudill, architect and educator in Houston, Texas, recently said that, "What the average person sees and feels about architecture will always be important. But the days of I-don't-like-it and my-opinion-is-just-as-good-as-yours are numbered. The eyeballing means of evaluating architecture hopefully will be improved by an educated eye. Architecture appreciation must concern education. Form consideration is not enough, for architecture concerns function and economy as well."²
I am, therefore, directing my question set to anybody who is willing to make inquiries and state value judgments beyond his first impressions. I do not wish to suggest formulas or recipes no matter how rational, but rather a way to question buildings. By the nature of the approach, I would hope the questions change as new problems arise. In this way, likes and dislikes can be reserved until after an inquiry into the building's characteristics.

STATEMENT OF THE PROBLEM AND MY APPROACH

The end in view is to find a method of questioning (in lieu of pre-established criteria) which can be used to evaluate the effectiveness of buildings which are seen every day. Jan Rowan, the editor of the magazine, Progressive Architecture, stated recently that, "Architecture has multiple measures of excellence, and that therefore no common standard applicable to all projects can exist. In a pluralistic society we must have pluralistic architecture. Consequently it would seem we must apply pluralistic value judgments . . . Changing values are a reality of contemporary life . . . Concepts are not only subjective and relative, but also changing . . . which reflect the fast moving, fluid
It seems impossible to apply similar criteria to all forms of architecture; one must know what each building is trying to accomplish, thereby understanding its goals. If one were to say, for example, that all buildings must have a clearly expressed structure, it would not get him far, because buildings ought to be evaluated as they reflect original intentions and tasks. Structure may not be so important. Architecture is so complex that one cannot say that all buildings' problems ought to be solved in any certain way. LeCorbusier buildings cannot be appreciated with Lloyd Wright beliefs. Mr. Wright himself couldn't do it. In other words, one cannot compare bushels of apples with quarts of strawberries. This is one hurdle to jump in the attempt to evaluate the effectiveness of buildings.

However, architecture can usually be discussed within a few basic categories. Added to William Caudill's format of understanding architecture in terms of form, function, and economy, a broad picture of the forces which act on buildings can evolve by adding Professor Buford Picken's categories of people, locations, and time. Let us assume from the start that almost everything which affects architecture can be understood within one or more of these ideas.
My discussion is concerned with the influence environmental and social forces have on what can be seen in buildings. For the sake of avoiding confusion in terms, let us establish that forms can be defined as anything which is perceived in buildings. An important question is, What gives form in building its real meaning, and provides the basis for its validity?

People ought to be more inquisitive about buildings, since they are so much a part of our daily environment. The sooner an attitude of inquiry can be established, the quicker an appreciation of buildings can be acquired. The problem is partially inherent in the fact that buildings assert many differences instead of searching for common standards of expression, and because so often unique problems must be solved by unique means. Questions must be reconsidered from time to time, not solely in terms of checking how applicable they are and exchanging them for others more to the point. Many surely will become stale. In so many ways renewal is a basis of life.

Critical evaluations of buildings ought not to be used as rules or prescriptions, but rather as an orientation which may be applied toward some understanding of the experience of architecture.
Critics have used many points of departure in questioning the validity of buildings. Banham starts by asking the question, "Why?" He says that, "Architecture deals with problems of use . . . and has the embarrassment of being a direct physical service to men . . . it is impossible to discuss the building without discussing what is it for. If you leave out the fact of utility you leave out the why of architecture as a human activity." He stresses the challenge of the functional intent as a starting point for investigations.

Related to his beliefs on utility, Banham has convictions concerning symbolism. "Symbolic expression is something miles removed from provident planning and good arrangement. . . . Rather the key to the value judgement is finding in the building the consistent working out of a personal response to the program and to what extent it is demonstrative." As a rebuttal to Suzanne Langer who argues for symbolism, he says, "Symbolic activity and not utility is the affliction of architecture." (By symbolism, Banham means architecture which is responsive to formalized needs worked out from socially acceptable points of view.)

There are those architects who do not agree with any system of evaluation for fear of the resulting points of view
freezing into irrational recipes. A good problem which these men pose is, how can you know that the questions you use are the correct ones? Anderson of Massachusetts Institute of Technology says, "I accept the non-absolutist analysis of society which denies that there are any independent criteria or that there is an absolute base of authority which can serve as the basis of our actions."

One of the most lucid architectural critics, Serge Chermayeff, says, "The further we go back in history the clearer it becomes that everybody knew what building was all about because everybody was involved in the act of buildings . . . continuity of culture permitted refinement of what had been acceptable to achieve excellence. He is more in favor of an approach which concerns problems of organization and intellectual rules for architectural behavior when the time comes for the appropriate choice of forms. He further believes that, "Architecture is still thought of as useless art. Actually it is not. It is a science as well as an art. . . . We have to re-evaluate the scope and nature of architecture." L. M. Nagy begins to formulate a system to investigate architecture of which the basis is biology. Space becomes a biological function. By this he means that men can appreciate their environment primarily because of their
personal sense-reactions. Space is, therefore, perceived in terms of human sight, hearing, equilibrium, and movement. Moholy Nagy says that most people look for stylistic characteristics in buildings where he would prefer them to start with spatial characteristics. "It is this traditional education which is responsible for the fact that the educated man cannot really evaluate architecture." He is also very disturbed that there is too much emphasis placed on the concept of architecture as shelter. He believes that space creation is the real conception. "The heart of the problem lies in the mastery of space . . . its practical development lies in technological advance."

Gio Ponti has also developed a system of evaluation. He asks questions about formal and structural invention, the essential, the expressive.

SUMMARY

My intended audience is anyone interested enough in architecture to want to delve beyond his first impressions. Personal judgments such as, "I like it," or "I don't like it," have value only when supported by the ordered inquiry of each observer.
The purpose of this report is to establish a point of departure for such inquiries. By developing a fundamental theory which is used to support an inquiry into the effectiveness of buildings, a question set can be established which any interested observer can use as an initial guide.
NOTES: CHAPTER I


2. W. Caudill, TIB, Appreciation-Eyeballing (January 9, 1967)


5. Ibid., p. 97.

6. Ibid., p. 105.


9. Ibid., p. 32.


11. Ibid., p. 75.
CHAPTER II

SOME INFLUENCES WHICH HAVE AFFECTED
PUBLIC BELIEFS TOWARD ARCHITECTURE

So far, I have tried to establish the importance of an inquisitive interest in buildings. This kind of interest is needed in order to decide what does and does not work. Since it is necessary to make value judgments on what is good design (which is a value in itself), it is equally essential to search for a solid basis with which to establish a value scale.

The next aspect of the discussion takes into account what some people in history have used as a basis for their beliefs about buildings and architecture in general.

This brief discussion of some forces which have influenced people's beliefs about architecture is being focused on the early history of this
country in order to keep the discussion in simple terms. The historical examples are, hopefully, seen as an illustration of how people are influenced when they form beliefs about architecture. I believe that when a strong emphasis has been placed on ordering an environment to serve the needs of man, the resultant architecture has become a good servant. When necessities were not influences then the architecture became disconnected from its prime purpose: the service of man.

When Americans first began to settle on this continent, their rugged environment demanded immediate provisions for security and protection. Indians, heat and cold, and insects forced them to "Burrow themselves into the earth for their first shelter under some hillside, casting the earth aloft upon timber; they
make a smoky fire against the earth on
the highest side and thus these poor
servants of Christ provide shelter
for themselves, their wives and
little ones, keeping off the short
showers from their lodging but the long
rains penetrate through to their great
discomfort in the night season."¹

The severe limitations of the rugged
new land automatically forced strict
attitudes toward architecture. Men
needed good protection; and relied on
earth materials to secure it. The
hostile environment left the settlers
no alternative but to build with deter-
mination to defend themselves against
the raw conditions of an unknown land,
so that they could pursue the riches
which lay before them.

PRE-INDUSTRIALIZED AMERICA

The application of brick and sawn lum-
ber greatly influenced attitudes toward
building, particularly, when settlers
had the opportunity to come out of
their smoky mud sod huts.

A few years after the first settlers arrived, most colonies had some people who were familiar with basic methods of building in wood and masonry.

Up to this time beliefs about architecture were greatly affected by production technique. The Gothic style did not appear until well into the nineteenth century and even then not as a form of building technology but as a literary attitude. Gothic culture was popularized not through the visual arts but through literature such as the novels of Walter Scott and Victor Hugo.

In New England the character of interior spaces reflected a response to climate. Low ceilings, small rooms and windows afforded good protection against cold by allowing efficient heat-production.
Reliance on elementary techniques remained the same although materials and climate differed somewhat. In Massachusetts, the first wood buildings were derived from English frame construction. In Pennsylvania, the Germans and Dutch, both responding well to climate, built wood-frame houses with steep gables. In Delaware, the Swedes built log cabins so familiar to them back home.

The Spaniards used masonry in the Southwest; and, in response to subtropic conditions, the French brought tiled roofs, high first floors and timber and nogging walls to New Orleans in 1716.

As colonial society developed, beliefs about architecture were influenced by more factors than severe environmental conditions. Fitch says that among bourgeoisie in early America, the resort to classical antiquity as source for character was the result of
"... fighting free of boredom and planless growth,... The classic thus became the unit of measurement. The standard by which they judged."\textsuperscript{2} In any case, Americans adapted Roman and Greek styles to their buildings. Until America became a nation in 1776, she was too busy conquering a continent and getting organized politically to bother about styles in architecture.

But soon after America became a nation, styles among other commodities were ordered by the rich from homelands in Europe. Craftsmen were brought to America so that they could apply prevailing European tastes of the day to climate-worthy American architecture. Granite facades of Georgian London were rendered in wood by clever craftsmen all over the East coast.

Interest in Classicism became a romantic attitude. Neo-classical Architecture began to take on political significance with the works of
Thomas Jefferson, which were formative in developing the public's beliefs about architecture.

Because of his buildings at the University of Virginia and his home, and because of his official positions as Secretary of State and as President, Jefferson was able to focus the attention of the American public upon ancient Greek and Roman culture, which he believed epitomized a democratic esthetic. Jefferson combined his search for a formal hypothesis in architecture with a strong interest in practicality.

As a Realist he suggested things for Americans to watch for as tourists in Europe: He said to look for "... Architecture worth great attention. As we double our numbers every twenty years, we must double our houses ... architecture is among the most important arts; and it is desirable to introduce taste into an art ..."
L'Enfant's plan for Washington did much to influence the character of towns all over the country. We see the ubiquitous equestrian and heroic statue throughout the land. He portrayed the city plan as a classic monument to the state. The architecture of wide avenues and symmetrical vistas was an expression of autocratic royalty and power.

This kind of architecture seemed to be an antithesis of a democratic esthetic. Roger's Tremont House in Boston had a significant influence on classical hotel architecture for decades.

Another aspect of how public beliefs were influenced at this time concerned the frontier domestic vernacular. A. J. Downing published a book of plates and plans for country houses. The plans were informal yet shrouded in Italian, gothic, and Tudor clothing. Other books were taken, along with Downing's as guideposts for the assemblage of frontier architecture.
Carpenters began to develop methods of sawing and carving unique to their area of the country. "Carpenter" architecture sprang up all over the west, interpretations of Gothic, Italian, and Tudor ornament were expressed in wood carving.

We find this decadent, yet highly entertaining development of classic ornament transferred to wood in the mining towns of California and Colorado, which are ghost cities today; some municipal buildings such as the town hall and hospital in Tombstone, Arizona; and, of course, the fabulous ante-bellum domestic mansions of the South in such places as Athens, Georgia; James Parish, Louisiana; Natchez, Mississippi; and Ascension Parish, Louisiana.

One of America's first real critics on art, Horatio Greenough, was known only to a very few of his contemporaries and, as such, had a delayed response to his ideas. Yet his understanding of
society and designs has been seldom equaled in our time.

His beliefs have taken years to assimilate into public beliefs, but his grasp of critical values was thorough.

"He was under no illusion that Rousseau's natural man, merely left to his own device, will finally produce a satisfactory building. He was discussing flesh and blood American workmen, rapidly learning that folk-knowledge was not enough for industrial production; that the laboratory was the womb of the factory, science, the seed of design."  

One of the most influential of the Gothic revivalists was an English neo-gothic architect, August Pugin, whose base of authority was not only previous scholarship in archeology but ecclesiology, the revival of religious pictures. An ecclesiologist was a protestant archeologist. The Gothic revival was also a Doctrinaire English
Nationalism, since Gothic was supposed to be English. This was a recessive attitude, in that the world was to be considered something like the past. Pugin wrote *The True Principles of Pointed or Christian Architecture* in which he argued for: (1) no superfluous ornament, (2) convenience and propriety, (3) functionalism, (4) Gothic style. He also wrote *Contrasts* in which he compared the London of 1540 A.D. to 1840 A.D. He found the former the more favorable environment as a result of the onslaught of industrial buildings. Under Pugin's influence, such Gothic images as the pointed arch and dark spaces changed much of building in the middle of the 19th century.

The English gentleman architect, Sir Gilbert Scott, actually designed seven hundred and thirty Gothic buildings. The foolishness of this is seen when one realizes that true Gothic architecture is found in the mason's yard, not
at an architect's office. Gothic architecture depended on the character and sentiment of the middle ages. Therefore, it was beyond revival.

The revivalists depended on rules, not sentiment. But Pugin's significance lay in the fact that he took the reform of art to the reform of society... from advocacy of dead decoration to underlying principles of design and social order.

POST INDUSTRIALIZED AMERICA

Industrialism in America and England brought about many significant changes in beliefs about architecture. A new building type, the factory, demanded three new developments: long spans, greater strength of materials, and greater height. The nature of mechanized mass production required structural systems more efficient than masonry bearing walls.
With the advent of gas lighting for artificial light, buildings were freed from previous reliance on natural light. This led the way to twenty-four hour buildings. The first steel wrought iron beams were rolled in Pittsburgh in 1854. In 1856, Bessemer revealed a process by which cast iron could be converted to steel by exposing air to iron in a molten state. The engineer appeared on the scene as the professional whose job it was to solve the utilitarian problems established with the advent of industrial enterprise.

Sir Joseph Paxton's concept for the Crystal Palace, a quickly built efficient structure, had little influence on anyone's beliefs about architecture until more than thirty years later when Eiffel built his iron structures in Paris. The Crystal Palace was a false spring in architecture. It was ignored as art; moreover, it did not stimulate iron and glass construction.
for years; however, it did instill the idea of a quickly erected, economical structure which provided vast free spaces for the use of large numbers of people.

John Ruskin and William Morris, critics who led the Arts and Crafts movement, had an even greater impact in this country than in England. They wrote for everyone, including the laymen. Fitch says of Ruskin: "He was one of the earliest critics to direct his words not at the closed circle of critics and intelligencia ... but at the middle class audience, which ... rapid communication had created ..." 5

Ruskin was characterized by his development of rational theory which counterbalanced his dogmatic insistence on the use of Gothic forms. As a theorist, Ruskin was the first critic to establish the idea of social awareness. He saw architecture as a problem-solving art. As a moralist, he insisted
on integrity in the use of materials and structure. Even though he despised architectural deceits, yet he could say, "It is necessary . . . to distinguish . . . between architecture and building. Let us . . . confine architecture to that art which impresses on the building certain characters venerable or beautiful, but otherwise unnecessary . . . architecture concerns itself with those characters of any edifice which are above and beyond its use . . ."  

Ruskin's theory, along with Morris', was recessive in that they believed the medieval world was the examplar for humanity; handicraft was the panacea for the illnesses of the century. Yet for both, art had a social function. Morris argued that art is not for the few, no more than education or freedom is for few.
SUMMARY

Beliefs about architecture during the early history of this country were reviewed. The first settlers were dependent primarily on elementary production techniques, although climatic and topographical problems varied. When America became a nation, however, styles, among other commodities, were ordered from Europe. Neo-classicism became a romantic attitude. With the advent of the industrial revolution, the manufacturing process brought about the feasibility of mass-produced, pre-assembled, part-oriented buildings. This phase of architecture was not largely accepted by architects as a sensible basis for design until late in the 19th century. Some influential theorists thought that machine oriented architecture destroyed human values and should be ignored in favor of a recessive interest in antique and distant cultures. But this sort of eclecticism
was not economical enough to suit the needs of the next century.
NOTES: CHAPTER II


2. Ibid., p. 20.

3. Ibid., p. 36.

4. Ibid., p. 77.

5. Ibid., p. 70.

CHAPTER III

HOW FUNCTION INFLUENCES WHAT CAN BE PERCEIVED IN BUILDINGS

There is a definite need for a value scale to measure the effectiveness of buildings.

Value scales can be established only by utilizing personal value judgments. Such judgments can have meaning as long as they are supported by careful investigation and analysis.

In order to provide a method for an ordered inquiry into the effectiveness of buildings, a fundamental theory will be developed which may help to establish a framework for that inquiry.

The underlying idea upon which the entire theory is built is that everything which can be perceived in a building ought to reflect and mirror the forces which affect that building.
These forces can be categorized as: (1) function, or the physical utility of the building; (2) economy, which concerns the maximum output with minimum means, both at a monetary and visual level of meaning; (3) time, which includes relevant history and traditions, and the influences of the culture which produces the building; (4) location, which includes the "where" of the building in terms of micro- and macroclimate; and (5) people, which includes anyone who builds or uses the building.

Finally, a fundamental terminology will be developed as a response to the need for an architectural vocabulary necessary to be able to discuss some important visual aspects of architecture.

The entire discussion is meant to be a foundation for a suggested method of inquiry into the effectiveness of buildings.

The first force which certainly affects all buildings is function or physical utility— their reason-to-be.
Horatio Greenough was the first American critic to grasp an idea which seems to have eluded so many architects before and after his time. Greenough was quite specific when he said: "Here is my theory of structure: a scientific arrangement of spaces and forms (adapted) for functions and to site; an emphasis of features proportioned to their graduated importance in function; colour and ornament to be decided and arranged and varied by strictly organic laws, having a distinct reason for each decision; the entire and immediate banishment of all make-believe."¹ . . . let us learn principles, not copy shapes . . ."² Greenough was very much aware of the fact that there is a distinct relationship between the visual and utilitarian aspects of architecture. Here he analyzes function from several different points of view.

"By beauty I mean the promise of function. By action I mean the
presence of function, by character I mean the record of function."3 His "character" can be understood in terms of what can be perceived visually in the architecture. He is specific in citing an example which is still appropriate today: "And where would examples of such beauty be found? Observe the Yankee clipper ships, which had already caught the imagination of the country:

Here is the result of the study of man upon the great deep, where Nature speaks of the laws of building, not in feather and in flower but in wind and waves, and he bent all his mind to hear and to obey. . . . If this anatomic connection and proportion has been attained in machines and— in spite of false principles— in such buildings as make a departure from it fatal, (such) as bridges and scaffolding, why should we fear its immediate use in (building) construction? . . . ."4

Not only did most of his writing fall on deaf ears, but many reacted strongly. Some of John Ruskin's recessive philosophy is anti-functionalist in the extreme:

"It is very necessary, in the outset of all inquiry, to distinguish carefully between Architecture and Building . . . ."
Let us, therefore, at once confine the name (architecture) to that art which impresses on the building certain characters venerable or beautiful, but otherwise unnecessary."

This kind of architectural pedagogery made functionalism a fearful scarecrow.

Perhaps the most lucid clarification of the relationships between function and form come from the writings of Louis Sullivan. Forms for him are wholly inseparable from function. For us today, this is not an unreasonable attitude to assume ourselves. In his delightful, witty colloquy between master and student, Sullivan banters back and forth. The student grasps at an idea:

"It stands to reason that a thing looks like what it is and vice versa. In other words, in a state of nature the form exists because of the function. Function finds or is engaged in finding its form. (There is) a definite explainable relation between the form, the development of each building, and the causes that bring it into that particular shape."

Sullivan carries his arguments to a further state of clarity by describing to
what extent his theory holds true:

"... Well then, I suppose if the law is true of the building as a whole, it must hold true of its parts ... Consequently each part must so clearly express its function that the function can be read through the part.

"Very good. You might add if the work is to be organic the function of the part must have the same quality as the function of the whole; and the parts, of themselves and by themselves, must achieve the quality of the mass; must partake of its identity ..."

Sullivan had great fun poking at the idea that what we see was one thing and function another thing.

"Yet this is not a whit queerer than are some of the queer things now filling the architectural view, as, for instance a steel frame function in a masonry form--

Imagine, for instance:
   Horse eagles.
   Pumkin-bearing pea vines.
   Frog-bearing pea vines.
   Tarantula potatoes.
   Sparrows in the form of whales, picking up crumbs in the streets.

If these combinations seem incongruous and weird, I assure you in all seriousness that they are not a whit more so than the curiosities encountered with such frequency by the student of what nowadays passes for architecture ..."

The primary difference between Greenough and Sullivan was that Greenough was far
more concerned with scientific method, whereas Sullivan was more concerned with the spiritual life of buildings.

Somehow, both wound up sold on the importance of the interrelationship of function and form.

To carry the idea further—any form which does not represent a function or task can become very silly—at times, a very serious problem. "Formalism" in architecture is still practiced today. It is the irrelevant use or imitation of forms, either to evoke a sentimental recall of the past, in which case history is used as a grab-bag for pictorial effects, or as a camouflage of some internal confusion. Pictorial effects in architecture are the antithesis of a clear functional expression.

Visual symbols can be forms which represent some significant intent of the building. For example, a desert building
might symbolize its regional spirit
with the use of sun protection devices,
small windows, and deep walls.

SUMMARY

The question is, not how much form and
how much function ought to be used; the
real issue is that forms are the direct
reflections of functions, which become
recorded in terms of Greenough's
"... Character." Forms are given
meaning when they are expressions of
functions--only in this sense, can they
take on "character."
NOTES: CHAPTER III


3. Ibid., p. 71.


7. Ibid., p. 47.

8. Ibid., p. 219.
Economy as a force affecting buildings had its first strong impact in this country with the advent of the industrial revolution. One of the big perplexities of architects at the turn of the 19th century was that their neoclassic ideals no longer suited contemporary industrial and social problems. They tried desperately to enclose spaces unique to industrialization, such as the factory, with Roman temple forms. Try to picture a temple with a smokestack.

Some of the best neoclassic architects, such as Shinkle in Germany and Soane in England, partially succeeded in the application of old styles to contemporary problems. Their basic approach was in terms of searching for principles which eliminated many
superfluous aspects of decorative historical styles. They simplified their architecture by eliminating expensive ornamental camouflage and by designing efficient buildings with the use of essential forms resolved through simple geometry. Some characteristics of buildings were: smooth surfaces, unbroken masses, simple silhouettes, monochromic flatness of detail, closed volumes, and solidity.

In spite of their revolutionary attempts to eliminate waste, they still did not solve the problems of the time in a way that really was suitable. Their forms were still recessive. The factory and the bridge brought about the necessity for many new economical building techniques. In order to produce a mass quantity of material, with precision and speed, while bringing production costs down, the design of prefabricated parts on a mass-produced basis was essential. This became a part-oriented assemblage.
Production disintegrated into part manufacture. This kind of efficiency reduced production and construction time and cost.

New problems of mass housing, transportation, industry, commerce, recreation, conservation, and sanitation had to be tackled with creative and economic solutions.

The economy was changing from agriculture to production. There were many factors which made the economy a powerful influence on architecture. Mobility of labor, freedom of industry, fewer traditional handicraft methods, man-made power, and the mobilization of capital brought about the development of utilitarianism. As a result, new spaces were needed for scientific, commercial, and industrial use, which needed larger spans using less material consisting of standardized parts. Criteria for design were speed and efficiency. All of this
demanded more than neoclassicism was able to provide.

Very frequently economical architecture with hidden structural skeletons was concealed by the ornament of neoclassic architecture.

The new need for uncluttered space was most clearly answered by Sir Joseph Paxton, when he designed the Crystal Palace in 1851. Economy was the prime consideration of this building. It had to be built quickly, have an open plan, and be non-permanent. These problems were answered with a simple skeleton of iron and wall and glass entirely consisting of small mass-produced standardized parts.

The great schism of the century was represented in this building. While it was ignored as art, its displays were coarse, overstylized artifacts. The same minds which produced these artifacts brought about the advent of
eclecticism, the archeological borrowing from many sources. Eclecticism was more rich and affluent than early 19th century neoclassicism. It had no universal program, moreover, it lacked theory or hypotheses. Architecture became a decorative art.

Problems arose very quickly. How many could afford such decoration and how applicable was it to the increasing number of complex buildings programs in industrial expansion and in general social growth of the late 19th century? In effect, economy destroyed eclecticism, which did not begin to satisfy the real needs of the time.

As a result, strong reactions set in. The Dutch architect, Berlage, said: "...decorations in ornament are inessential, while space creation and relationships of masses are its true essentials..." Rietveld, a contemporary of Berlage argued fiercely
against eclecticism. "Art is not a luxurious excess . . . which stands outside society . . . art is an important (economic) factor which creates awareness and sharpens discrimination. Art is not self sufficient. Art for art's sake is as degrading as applied art . . ." 2 Many of his contemporaries argued that architecture is a problem-solving art. The Futurist Manifesto stated sharply that, "Architecture is not just an arid combination of practicality and (economy), but remains art; that is synthesis and expression. Decoration, as something superimposed or attached to architecture is an absurdity." 3

One of the pioneers of modern design, Adolf Loos, attacked the problem of ornament. His primary target was decoration which he equated to crime. "The man who cannot design flies naturally to ornament . . . the evolution of culture marches with the elimination
of ornament from useful objects."4

SUMMARY

Economy is one of the most elusive virtues in architecture. Does economy mean saving money? I do not believe that this is necessarily the case. What it might really mean is that we can economize in many ways, one clear result of which is saving money. History has shown us that economy can influence buildings; but how is the derivation of what we see an economical process? It seems obvious that to eliminate waste and irrelevant forms is a primary consideration. The fewer the complications, the better. To condense to the most essential, efficient, and uncluttered forms will hopefully bring us to a useful architecture, which can satisfy man's needs. The classic definition of the problem is that the maximum output ought to be produced with the minimum use of means.
NOTES: CHAPTER IV


CHAPTER V

HOW TIME INFLUENCES WHAT
CAN BE PERCEIVED IN BUILDINGS

It is important to explore the history of architecture, because history contains basic ideas on which to evolve and develop theories of design. We can go no place unless we know from where we came.

Today we encounter huge obstructions in the attempt to appreciate buildings: complicated dogmas; personal manifestos; vague philosophies; technical difficulties; social snobbery; vague slogans such as "Fitness for purpose," "Form follows function," and "Form follows form."

This kind of deflection of our attention to irrelevant directions is prohibiting a general understanding of architecture. History can be of use in evaluating the effectiveness of
buildings, for history is where the examples of the relationship between tasks and solutions can be found.

What is tradition in architecture? It is certainly not the attempt to preserve simply what happens to already exist. It is not the permanent satisfaction of old forms based on old values. We do not want to build a new world based on ideas which are no longer relevant to us. We want to build a new world with forms which squarely face up to new problems.

Tradition cannot be tyrannical; that is, it cannot dictate laws of form or composition, because our world is changing too fast for that. Tradition seems to have more value when we think of it as the accumulation of a cultural heritage whose time-tested principles can be re-applied to problems today, thereby producing new and relevant forms. We ought to be more concerned
with problem solving processes than the imitation of traditional shapes, which at one time were perhaps a sound result of a need society once dictated.

Literal interpretation of the past, or "revivalism" is not the best way to use tradition. In fact, it is almost the antithesis of respect for tradition. If precedent governs opinion, then opinion becomes static. Many sentimental architects in the early 19th century tried with much enthusiasm to revive pointed arch churches. It was an impossible task since that kind of architecture was a result of medieval sentiment and capabilities of medieval craftsmanship and construction. These architects' revival ignored this and enforced rules. Their revival was based on the literary association that Gothic was Christian and English. Shapes, not principles, were imitated. They really ignored those principles which could take on different shapes in different
contexts, clear structure, separation of structure from space-enclosing walls, and the use of light to define space.

Today in Houston, there are many buildings which are dressed in historical clothing. Banks have Greek porticos; housing projects are decorated with what somebody thought was early American and French Second Empire styles. Style pictures are arbitrarily dug out of the past by cosmetician architects who consider themselves high priests in the judgment of good taste. These architects have little concern with the idea that tasks ought to be reflected in what can be perceived. They are more interested in attracting attention for commercial purposes with the use of novelty and fakery, or elaborate escapes from modern problems, into the mystique of irrelevant style pictures.

If one were to advocate the use of these picturesque "stage sets," we would have
to admit agreement with one of the foremost critics of the nineteenth century, Russel Sturgis, whose basic premise is that, "Architecture is the most complicated of the decorative arts."¹ I do not believe that architecture must be complicated or decorative. Architecture is not the application of facades to plans.

SUMMARY

The understanding of history as a source for task-solution relationships is helpful in the appreciation of present-day buildings. It is irrelevant to apply pictures of historical architecture to modern problems. Architecture is not the application of decoration to buildings; rather, it is a social art whose primary concern is the solution of important social problems.
CHAPTER VI

HOW LOCATION INFLUENCES WHAT
CAN BE PERCEIVED IN BUILDINGS

When Gertrude Stein was traveling through America not so very long ago, she made a succinct commentary on what she saw in many of our cities and towns. She said, "There is no 'There' there." Her impression was that too many places do not have identifiable characteristics which make them unique. This lack of identity seems to be one of the great difficulties of modern architecture.

I believe that sometimes regionalism ought to have an impact on building forms. The force which has reduced the effect of regionalism is universalism. In this case, building systems have become so standardized and philosophies so widely spread, that it is no longer strange to find similar buildings throughout the world, which answer
unrelated problems.

What can really help to give form to buildings is the effect local cultures can bring to bear in ordering their environment. Values and ideas differ from place to place and region to region even within our own borders. They differ enough to give distinct characteristics to regional architecture. Climate is a variable; so is topography. If functions are similar and often repeated in many regions, then why can't we enclose them with buildings which answer not only the constant needs of those functions, but the significant variables as well? In our country we have many different climatic regions; temperate, hot-humid, and hot-dry. Many excellent studies have shown that there are optimum building shapes, orientations, and relationships for each of these regions. Each region has different sun conditions. It is not enough to build just in terms of internal building tasks.
Architecture can be characterized by a direct response to a regional spirit. If you ask, however, "Why should we bother to respond to region because we have modern mechanical and structural systems to counter local problems of climate?", then what you will get (assuming we apply that point of view fully) is a building which is wholly inverted. That is, it relies only on itself for survival. It does not respond to the spirit of the environment to help establish its character. The building, then, becomes a part of a universal architecture. But that is exactly what repulsed Gertrude Stein. Monotony and dull repetition are the ultimate results. Moreover, architecture will have left behind the realm of the psychological existence of man. It will not have considered the need for solving individual problems in unique ways. If no attention is given to regional spirit, then man can begin to lose a sense of identity with the
place where he lives.

Along with the macro-regional environment, micro-conditions have an important part in shaping buildings whose sites have specific characteristics which can become determinants for affecting what we see. These may be topography, local winds, access, and the scale of surrounding buildings. Local codes and zoning restrictions can also have a heavy influence on buildings.

SUMMARY

One way in which buildings can be given a strong character is to draw from regional spirit, such as local cultural values, availability of local building materials, and regional climate. Even though standardized building systems have produced efficient solutions, in terms of structure and mechanical equipment, still, if man cannot achieve an identity with the place where he
lives, then there is a good chance that his physical environment will become terribly dull and irrelevant. Region can shape buildings and, in doing so, can give them a uniqueness and vitality.

Perhaps the most direct criticism of architecture in our time is that, "There is no 'There' there."
CHAPTER VII

HOW PEOPLE INFLUENCE WHAT CAN BE PERCEIVED IN BUILDINGS

People's cultural values are embodied in many buildings. Buildings are frequently visual symbols of the society in which they are built. They ought to respond to important social forces.

That architecture is a social art is generally an accepted point of view. Architecture is not an esoteric art for the enjoyment and appreciation of a knowledgeable few; rather, it ought to be for everybody. Many times in his articles called, "This I Believe," Professor Caudill has stated the importance of the fact that buildings are not only designed for specific clients, but that because they are a part of the physical and visual environment of whole communities, they are in reality used by many other
people. In effect, when we see the house across the street from ours, visually, it belongs to us. Architecture in this sense becomes a backdrop for human life.

Rietveld said that, "... Architecture is not a matter of beauty or ugliness but of clarity ... good architecture is a fragment of reality which forces a partial expansion of self. It is the background of our life, neither more beautiful or ugly, but if it is good: CLEAR ..."¹

Gropius carries the idea further when he states that architecture exists on a higher plane than just building construction. It has the importance of serving human needs:

"Architecture as an art starts beyond the demands of construction and the economy at the psychological level of human existence ..."

"Buildings are not monuments but receptacles for the flow of life, which they have to serve ... a background for life ..."²
There is nothing really new in his idea. Societies have always determined the purposes and values, have defined uses, and have prescribed materials and techniques. Architecture can reflect either innovation or tradition. But perhaps it can first improve society by improving physical environments.

Norburg Schulz has retained as a basic premise throughout his book, *Intentions in Architecture*, the idea that the primary purpose of architecture is to give order to human environments. Visual chaos is the enemy under constant attack by man's attempts to give visual and physical clarity to the framework for human activity. We cannot survive long within a physical environment which can offer only confusion, disorganization, and disorder.

We can neither clearly think nor act in such circumstances.
All organization in architecture is ultimately concerned with appropriate surroundings for human life. Buildings cannot be considered as art purely on their own sculptural merit, but rather, can best be appreciated as containers for human activity. Rietveld stated the problem clearly when he said that, "... Man, not the product, is the aim . . . "

SUMMARY

Architecture is a social art. It can both respond to and influence the values of society. Not only must buildings answer the needs of their individual inhabitants, but must serve as elements within a larger framework. Buildings can exist for many people beyond their specific inhabitants. An orderly arrangement of many buildings can create a cohesive community. Buildings can act as visual symbols of significant ideas or activities.


CHAPTER VIII

WHAT CAN BE SEEN IN BUILDINGS THEMSELVES

The past five chapters have briefly reviewed the important forces affecting what can be perceived in buildings. The time is appropriate now to look at some principles of visual order in the buildings themselves. For this discussion, the word, "form" will include anything that has visual meaning in buildings, including columns, doors, windows, floors, or even spaces.

The basic questions concerning what can be perceived ought to be asked, always keeping in mind that the most relevant forms are those which are derivative of significant forces affecting the building. To discover the meaning of forms, we have begun to investigate those forces which concern who is involved, the location, the time in which it is built, economy, and function.
Buildings can be appreciated in terms of two basic environmental elements and how they interact on each other. There are many ways to evaluate the meaning of elements: Let us assume that the two basic elements are spaces and boundaries of spaces. Boundaries may be considered as solid bodies called masses and two dimensional bodies called surfaces. Both space and spatial boundaries have properties which may help to clarify their meaning in architecture. A second way to look for visual order in buildings is to examine the total organization of these elements. This can be called composition.

Scale is an important property of the basic elements. It is the measurement man uses to orient himself to his environment. Space is limited by boundaries. Therefore, in order to arrive at an understanding of scale in spaces, some commitments must be made about how boundaries give definition to space.
Space-scale may be understood when some comprehension of the total size and organization of boundaries is comprehended. What happens within these boundaries also sometimes helps to define scale of spaces.

For scale, man needs orientation. For example, an airplane pilot without instruments needs an orientation point to determine his position. He needs the horizon, the stars, or the sun. Otherwise for him space has no definition—no scale. He needs to measure himself against something outside of himself.

If there is nothing, not even another plane, then our pilot is truly alone in infinite space: This can result in total loss of the comprehension of one's own size.

Time scale implies that distance often is more efficiently measured in minutes and hours than in inches and feet.
Physical scale concerns man's perception of specific aspects of his environment as they relate to his size.

Psychological scale is concerned with the problem of orientation, frequently understood in terms of expectation and surprise when anticipating sizes of elements other than what one finally perceives.

Spaces have many different sorts of definers. Light, three dimensional masses, and surfaces are probably the most general categories. The spectrum of spatial closure starts with limitless space and negligible enclosure, such as the wide ocean with only the horizon and the sky acting as definers, to the wholly closed space of the casket buried underground. Furthermore, boundaries can be implied by creating closure with elements which are separated from each other, yet which imply by their position a virtual "wall." Closure becomes intensified as the proximity of
the closing agent becomes greater and relative size becomes larger. Space is shaped by containers.

Light can be considered a container of space. It can affect apparent size of masses. Artificial light by itself can shape space. A sports stadium at night has a ceiling defined by strong beams of light focused on the field. The relative intensity of light can increase or diminish importance of spaces. Space can be further developed by using glass as a transparency, allowing light to flow through walls such that interior of buildings has a more direct contact with the outdoors. Reflectivity is a property of some materials which depend entirely on the controlled presence of light. Chrome columns are an example of this. Spatial character can be further defined by distinguishing between lighter and darker surfaces and areas.
There are many different kinds of space. A spatial void is an opening in a surface beyond which can be perceived more space. This ought not to be confused with the idea of cavity in space which can be understood as an opening in a surface into which one can visually penetrate but cannot exit, except to return on the path of entry. A hollow cave may be considered a cavity; a window is more likely to be considered a void. The idea of a volume is almost interchangeable with a space container, moreover, it can be considered as any thing which measures the total three-dimensional cubage of the space. Volume is not space itself but any whole container which encloses space.

This brings us to an issue which needs clarification. Frequently, forms having a particular character from one point of view may change character as the viewer changes his position. That mass can become volume is a case in
terms of scale because the total picture of all the units is a single texture, which eliminates the idea of clearly perceptible units.

An elusive subject in evaluating architecture concerns scale in structure. In a system of columns and beams, columns sized to support a load often can be designed for both visual and structural need. For example, it may be that to attain appropriate scale, they could be increased in size. Specific dimensions of structure, beam depths and span, column lengths and widths help to characterize scale in structure as long as one measures himself against these dimensions.

Structure can be a way to clarify definition of orientation, direction, movement, and the force of gravity as it affects the shape of buildings.
point. From long distances, buildings frequently appear as solid objects, perhaps defining exterior spaces, but not space enclosing; however, there is no set rule to determine at what distance the mass evolves into a volume (or space container). Such attitudes frequently change according to point of view.

The next category of elements concerns space defining objects, masses, volumes, and surfaces. The scale of these elements can be discussed within a variety of different circumstances.

Scale within elements may be possibly understood by looking at the number of structural (or other) units within a total mass. Frequently, the fewer the units, the smaller the building appears—and the greater the number of units, the larger the building becomes. Carried to an extreme, a very large building, with a great number of structural bays, must be evaluated differently in
It is always a problem to determine if long span structures, such as Nowicki's Fairground structure in North Carolina, can be used for residential scale buildings. How does size change scale? When a structure, whose shape, specially designed for one span, is used in another drastically reduced span, clear scale can begin to evaporate.

Scale is also disrupted by introducing the element of surprise—if we enter a building the size of a house, whose structure is intended for a stadium, we begin to feel like giants, based on what we know that structure can do. The big question is, if a structural system is equipped to solve long span problems; when the spans are vastly reduced, is the scale of the structure still appropriate? In effect, does change of scale infer change of shape? Structural scale is determined by spans, loads, purpose, and character of the structure, and the expression of maximum efficiency.
of the material.

Material scale is frequently concerned with building units, such as blocks of stone or courses of brick. We can readily measure the size of surfaces if we comprehend the size of individual units within that surface.

The purpose of building materials is to enclose and define spaces for comfortable, efficient use. Glass is used often when enclosure is necessary, yet view or light is desired. If view is desired, there is the intention of visually joining different spaces.

The intention may be to continue a previously established scale or to create a contrast in scale.

Many people have theories which categorize space enclosing forms. Professor Caudill of Rice University isolates form into skeletal, plastic, and planar characteristics. By skeletal, he means forms which clearly express the structural
frame; space enclosing systems are separate from the structure. Professor Gordon Heck at the University of Arizona classifies this idea as "differentiated construction." By plastic, Mr. Caudill infers a sculptural form whose importance is found in carving shapes from masses. Structure could or could not have importance, depending on the circumstance. He would say that LeCorbusier's Ronchamp chapel is an example of plastic architecture.

By planar, Mr. Caudill refers to the enclosure of spaces with disengaged two-dimensional surfaces whose edges are clearly seen. Mies van der Rohe's Barcelona Pavillion exemplifies the idea. The whole principle here is that most buildings are never pure forms, but architecture can be examined in this way if the various forms of buildings are isolated so that they may be seen
more clearly.

Caudill's theory closely parallels Norberg Schulz's, who says that all forms are either skeletal or massive. In this sense, the author implies that planes (which he calls surfaces) can define masses or space.

The last basic element which encloses space is the surface (or two-dimensional plane). Surfaces can be characterized by their textures and colors which, in turn, reflect the material which makes up the surface. Surfaces may provide definition for masses, or directly of spaces.

Composition, the relationship between elements, is a very old idea. T. N. L. Durand in 1821 wrote a paper on "Assemblies of Parts," in which he recommended the piecing together of various pictures of historic styles into what he meant to be an orderly architecture. His theories are echoed in the work of
Gaudet, the French Beaux Arts Master, who believed that, "... the study of composition of buildings is in their elements and their totality from the whole viewpoint of adapting them to defined program and material necessities ..."

The primary purpose of composition is to unify all elements. There are many ways in which this can be accomplished. There ought to be a clearly established relationship of elements in terms of their importance or significance. This can be fixed by varying size, by contrasting positions in space: for example, one central space might be the most important within a system of dispersed spaces. This idea can be called hierarchy.

An element can be the dominating focus in a space. Spaces with no focus may have many dispersed elements, all of equal importance. A simple point focus in a significant position can
certainly help to generate movement of people. It would act as a visual magnet toward which people would be attracted. Simple point focus can also be used to denote spaces of interest by rising above to announce its position in the city. One of the best examples in the world is St. Mark's Piazza in Venice where the bell tower rises high above the square.

The use of a dominating element as a focus in the space is one of many ways to attain unity.

Simplicity in architecture is an elusive virtue which can be achieved not only with the use of foci, but with the elimination of superfluous parts, a distinct avoidance of complexity. The attempt through architecture to create an orderly environment by minimizing visual chaos is one of the basic premises of Noburg Schulz.
Unity in architecture very often presupposes a proper balance of elements. The most primitive form of balance is symmetry, an expression of an equality of parts. For example, in a symmetrical building, if the entrance is in the middle, and areas to both sides are exactly the same in character and plan, we can assume a similarity of activities. However, more complex systems of balance can assume many more manifestations of equilibrium than a biaxial arrangement. When many different kinds of elements must be coordinated within a single composition, balance can be achieved more easily by avoiding formalism, and striving for that relationship which readily serves the purpose of a given activity. More than likely, the resulting composition will consist of an asymmetrical arrangement of parts, which, if successful, would be a simple combination of elements not dictated by a formal geometry. In this respect, we can agree to any combination as long
as it serves given needs with a distinct visual order.

The idea of consistency is the way in which that order adheres to constant principles of organization. Consistency may be in the repetition of similar elements or the coherent organization of compatible elements. Articulation is one of the most important characteristics in the organization of buildings. It presupposes a clarity in the relationship of parts to whole and parts to parts. The most general meaning of articulation is clarity in organization. A lesser meaning of the word may be clarity in joining materials, surfaces, or masses with a distinctive separation.

Variety is most readily found in that kind of architecture which has already established an orderly arrangement of elements. An excellent example of this is LeCorbusier's visual arts center at Harvard. In this building, the architect established a rectangular module for
positioning columns. He deviates from the module, where serpentine walls enclose spaces. Variety is based on diverse ways in which an ordered system can be applied. In Louis Kahn's study for a community center, his building is a column structure. The variables in this system are the diversity of column shapes used according to their function and position. Corner columns are EL shaped. Columns carrying greater weight or higher roofs are larger than those supporting lesser weight and lower roofs.

Circulation is an organizing idea in architecture. It implies a clear sense of departure and arrival, and clear orientation along a given path. Circulation is one of the few organizing ideas which are common to all buildings. We always have to get to the place where we are going; we have to leave it to get to other places, and go from place to place within buildings.
Circulation, if clear, will express exactly how people really do move. The scale of forms along paths of movement reflects the intensity and speed of movement.

Dimensions are simply distances between points in space. Proportion is the relationship between dimensions. With the application of similar proportions and a change in dimensions any given element may change scale.

**SUMMARY**

Form is anything that can be seen in buildings. Form consists of the basic boundaries: space and spatial elements. These elements have inherent properties which help to pinpoint their place in architecture. However, the validity of forms presupposes a direct relevance to their tasks. Forms are the products of significant forces acting on a given task. Moreover, it is extremely valuable, in the appreciation of form, to search for one
(or more) powerful overriding idea
which governs the entire organization
of form. This idea may govern not only
the most general composition of forms,
but the most minute details. If there
is not such a broad plan, it is extreme¬
ly likely that the attention paid to
elements individually will result in a
loosely assembled, disjointed collection
of parts.

Somehow, the whole must assume a greater
significance than the sum of the parts.
This basic idea may be a very likely
place to start searching for the reasons
buildings are the way they are. Symbolic
content, or the spiritual reflection of
some human activity, is vital to any un¬
derstanding of buildings. In fact, if the
building is not a clear expression of
some spiritual motivation, then the ef¬
forts to assemble parts amount to nothing
more than a meaningless accumulation of
doors, windows, walls and ceilings. A
successful office building, for example,
can be a cathedral of the business world as much as a church can be a cathedral of religion. Without "spiritual" content, or the symbolic image of the activity housed within, a building has little value.

A building must be an expression of some strong human motivations in order to gain recognition as successful architecture.
CHAPTER IX

TWO BUILDINGS IN HOUSTON, TEXAS

INTRODUCTION

We have so far, attempted to establish the need and purpose of this study. Some historical background has been explored in order to show what factors can influence people's beliefs about architecture; a fundamental theory was developed as the basis for the question set.

The next section contains a personal examination of two buildings in Houston, Texas, which will help to build the vocabulary and further develop the searching process which will lead to the question set.

The primary intent in evaluating these two buildings is to begin to clarify how each of the forces in architecture, economy, function, people, place, and
time affect what can be seen in buildings.

This is an empirical study which will be used as a partial base to build further assumptions and ideas.

Two sets of buildings in Houston, Texas, St. Thomas and St. Barnabus are studied in order to find some basis for a way to investigate the effectiveness of buildings. The inquiry does not have any particular order but rather is a continuous, random thought process which strives to search for ways to examine buildings. This process is not so much intended to be used by other observers, but rather is my own way of distinguishing between essential and unessential architectural expressions.

These two particular buildings are examined because they are clearly organized and can be of great use as subjects of such an initial inquiry.
More complicated buildings may very well have allowed the investigation to get bogged down in sundry details, and a whole spectrum of complicated concepts. With St. Thomas and St. Barnabus, there are only a few clearly expressed concepts upon which their entire organization relies.

ST. THOMAS
HOUSTON, TEXAS

St. Thomas is a small Catholic college, located within a residential environment. The drawings of the master plan show buildings surrounding an oblong rectilinear court yard, whose walls are an exterior walkway which link all the buildings.

There are court yards defined by the walkways, but what are the yards really for: To use as exterior study spaces? Could one say that great attention is paid in landscape beautification?
Are the buildings designed such that they are perfectly suited only for this particular site?

Can this kind of architecture fit any site?

What tells me that the buildings are not designed specifically for the problems of the site?

Do the masses create a sense of shelter? Are they expressive of formal procession? They are none of these, and it is not necessary to dwell longer on the significance of the idea that we cannot count against a building what it was not consciously trying to achieve. Concerning function, St. Thomas is a college; one can see immediately upon arrival at the site that a major problem for the college was staged growth.

The college most likely could not afford to build everything at once.
At the present stage of growth, one sees two parallel double deck circulation corridors. Two pedestrian decks are affixed to completed buildings: On one side of the main area, the deck awaits, partially constructed, the buildings it is to serve in the future. Here is a strange sight: one deck runs the length of a series of connected buildings. The corridor parallel to it and about 200 feet away, across the shaded lawn, is as long as its parallel corridor, but, for the most part, stands alone, except for a building at one end: most of that corridor has merely a barren superstructure, even without poured concrete floors on the second level. This seems to have the architect's answer to a major problem of the college: growth.

He allows growth to occur along paths of student movement. He has built the entire circulation system first to facilitate easy additional building
expansion connected to it in a linear way. One notices the proximity of the deck to buildings which must in the future be torn down to meet the needs of the college.

Did the architect make a conscious attempt to create a visually satisfactory form out of the unfinished pedestrian deck?

One can measure the success of this framework for growth by observing the ease of adding buildings when money becomes available, and when land is acquired. One can read some success into this particular solution to a significant problem.

St. Thomas is comprised of structures, whose materials are steel, brick, and glass. What guideposts are appropriate to establish the success in the use of these materials?

There is a distinct traditional way of thinking in architecture which emphasizes
above most anything else that there
be very clear and precise relation-
ships of high quality and humble
materials; that there be the utmost
precision in their use.

Technological development has motivated
an architecture which places the high-
est importance on detailing materials,
giving them proper textures, colors,
and fixing them appropriately to adja-
cent materials.

Such modern architects as Mies van de
Rohe are exponents of this point of
view. They emphasize extreme visual
simplicity and elegance, which result
in very polished, finished buildings.
There is little that is rough or rugged,
but rather, there is a fitness of detail
and elegance of color, texture, and
proper placement. This kind of archi-
tecture is very popular because it is
easy to apply in many different con-
texts.
There is a standard vocabulary of shapes and details in steel and glass. It is a simple building technique to construct a steel frame and enclose spaces with brick and glass. Structure is literally expressed and revealed.

Knowing that the architect strived toward these ends, an appropriate question now is: Do all the elements of the building complex meet the goals this philosophy sets forth? Is there clarity in the use of expressed structure?

One can see right away that the buildings are carefully detailed. The stairs are a good example. Their structure is very simple. They are clearly supported by a steel frame. It is easy to feel that they are sturdy. One can feel secure walking up the stairs even though they are very open looking. The stair stringer is welded to the steel frame of the building. This connection is both simple and suitable to the use of the material. Structurally, the
stairs seem stable. The welded connection is used for the purpose of clearly separating the stair from columns.

A certain welded connection is used on one side of the stairs but not on the other. Does this promote greater clarity or confusion?

One may ask the question, if a column which holds up a sector of a building is a certain size, why is the same size column used to support a delicate stair?

There is little question, however, that there is a clarity in the use of materials in the steel stair itself. The rail, which supports only the weight of a leaning man, need be only a small, steel tube. But the horizontal deck at the half flight level is a broad, sturdy beam. The rail is connected to the beam in a most simple and clear fashion by welding.
Let us look to other places on the campus to pursue the use of structure and materials. The classroom buildings consist of an exposed steel frame. The steel is painted black. Since it is the nature of a "Cage" type of construction for walls not to have any obligation to support structure, they can be used merely to enclose spaces. Where light is needed and views desired, windows can be used within the spacing of the steel columns which support the floors and roofs. Very frequently, in this kind of architecture, structure is used as a starting point to solve many problems. Structure may be a way to make the building become the proper size relative to the physical size of the people. Steel structure here is used to make the building turn the corner in a simple way. Where one side needed windows for view or light, the others may need a brick wall for enclosure. The structural column was a good way to change materials at an important
place—the corner.

There are places where one can be critical in the use of this kind of structure.

All of the columns are the same size, yet the column at the corners carries only one-half as much weight as the other columns, yet it has more mass visible because one can see two sides. Thus, the error is doubly serious. This represents a failure of the corner column to respond economically to forces acting within the structure. But was this particular structure intended to respond to static forces, or is there not a certain element of visual intention. If we can accept this, then we must ask, how well does it work, knowing that it is twice as large as is necessary?

What makes it valid then? Why not consider that it is easy for the eye to transfer from one surface to another with the corner column separating brick from brick, or brick from glass. We
can certainly ask of the structure that it has elegant proportions and clear relationships with other materials and clear way of meeting the ground.

But did the architect consider carefully enough the way in which the structure meets the ground?

Let's look again: Is there consistency here? Steel meets steel, concrete, grass and dirt. Steel is used throughout the building for structural support. In some places it is rough and shoddy—hardly up to the general standard set by the architect.

But more frequently, we find steel used with elegance and simplicity. Its delicacy gives the building a rich quality, an indication that the material was considered for what it can do uniquely. The columns of the circulation deck are almost fragile a measure beyond delicacy. Steel is used to visually relate
together many different building elements: Stair rail, window, structure.

The architect has clearly manipulated many different shapes of steel to suit certain conditions. In some cases, there appears to be an EL shape. In some of these cases, material butting to the steel wears and tears in the weather.

Paint begins to chip off the steel. Has not technology supplied us with the way to solve this problem? Extreme elegance is the result of ultra-simplicity in the use of steel shapes and connections--superfluous elements are absent. The "H" shaped column has a handsome contrasting relationship to the very delicate hand rails on the circulation deck.

As one begins to consider the broader picture of how all the building elements fit together, he may examine the relationship of the two major
building volumes, the classroom buildings themselves as they relate to the circulation deck.

Perhaps some good questions to ask are:
Is there a satisfactory relationship between buildings and decks? Are both clearly separate from each other?

In one case there is a deck structure standing away from the building, supporting itself.

In this case, columns support the deck on two sides. Where the deck leads to a building entrance, a small platform extends to the front door.

But in other cases, the deck becomes an appendage of the building structure by using as one of its legs a column of the main structure. On one side there is clarity; on the other, visual confusion because the deck is not visually separated from the classroom buildings. The seriousness of this
confusion is further demonstrated by producing a loss of clearly identifiable forms. The deck loses its strength as a separate circulation element. The deck is no longer a deck in many cases.

Certainly the organization of vertical to horizontal dimensions as determined to please the eye was a primary factor in the design. Window proportions are a very critical factor.

Vertical heights on the first and second level of the decks are equal. The repetition of dimensions here seems to lessen the visual excitement where potential differences were possible.

In consideration of the overall composition, there is, for the most part, a clarity in the organizations of elements.

There is a linear circulation system which serves classroom buildings.
The buildings are unified by many different means. There is a constant dimension between columns. There are only three dominant materials: glass, steel, brick.

A circulation deck is common to each of the buildings on a campus, as it is essential to make it easy to get from one place to another. There is not a total consistancy in the use of materials.

This bulletin board is a case in point. Its construction is sloppy to the point of seriously disrupting the continuity of simply used materials elsewhere on the campus. In some places, however, where joinery between different materials occurs, there is frequent unsatisfactory detailing. Where columns meet, plaster detailing is poorly treated: plaster fails. Where columns meet the ground, concrete is frequently sloppily poured, resulting in concrete-muddy column base. The use of
one concrete riser as a step is a serious error as many people will trip, not having seen one small rise in elevation on the sidewalk.

CONCLUSION

This building concentrates more on the elegance of materials, masses and details rather than a direct response to the regional or immediate environment, for this kind of architecture is found in every region of the country.

The buildings are trying to achieve elegance within their own forms.

One can evaluate how well the buildings grow because growth is a primary determinant of the design.

In the architect's early sketches, he shows a totally enclosed central area, the focus of which is a religious chapel. His visionary scheme will hopefully be completed a few years in the future.
The space he envisions, however, is in reality a weak closure. The distance between buildings is far too great for their height. The closure he shows on his first drawings is nearer to Jefferson's static educational scheme for the University of Virginia than a representation of 20th century campus growth. The real primary intent was the use of simple structures visually economical in terms of using essential elements and materials.

ST. BARNABUS - EPISCOPALIAN CHURCH
SOUTH HOUSTON, TEXAS

When St. Barnabus is first seen from a distance, one can sense its relationship to the community. There is not much question that the church is a visual focus of the neighborhood, ready to accommodate significant activities in community life. It stands alone in an otherwise empty field with
the nearest buildings blocks away. The building dominates the entire area, not only because of its isolation but because of its apparent scale relative to its nearest neighbors. The poor quality of the local houses and stores obliged the architect to separate his building from them.

At first the observer senses only solid block masses with strong angular silhouettes: But as one nears, he can begin to recognize very specific materials and comprehensible volumes which define interior spaces. He can see clearly that there are wood shingles on the roof and upper walls with which he can measure the total size of the building. The single window in the church also can be used as a guidepost to comprehend scale. One important element of the church is its cross which can be seen by the observer whether at a great distance or anywhere near the building. The building has an importance as a
focus of the community. It, therefore, symbolizes this importance by isolation, separation, and an increase in building scale; all of which increase its significance as a focus of attention. Isolation implies the importance of arrival and preparation for arrival. One is given a long distance to prepare for the entrance to the building. Even though one really starts to enter the church spiritually as soon as he leaves his house, the building takes over as a part of the experience as soon as it is seen from blocks away.

Concerning the composition of the building, there is a large central rectilinear box which is surrounded on four sides by smaller angular boxes. Knowing that this is a church, and seeing a cross over the central box, one can assume because of the small size of the surrounding box that the center is the sanctuary with ancillary facilities in the lower buildings. Each of the
smaller boxes is removed a short distance from the larger one. Upon close examination, we see that the smaller and the larger boxes are separated by a continuous walkway.

Exterior walls are all wood shingles and brick. Except for the two small ventilators at the top of one wall of a peripheral building, the entire surface is of one material—brick. At the top of the wall, a low course of shingles begins which continues on up to the roof.

The side walls of the higher central box are also shingled. At the top of the sanctuary wall one can see two water down-spouts on each side. In effect the exterior of the entire building is clean and simple, without interruption. At the building entries, we see a change in material on the box overhead. The entry pathway goes all the way around the building and returns to its starting point.

The pathway allows one to walk to the
smaller buildings and the central sanctuary.

One begins to suspect that this overhead box is of some importance to the building in that we find it above the entire walkway. The wood material changes from shingles to horizontal wood slats. It is placed between the sanctuary and the peripheral buildings directly over the walkway. One might suspect that it is delivering things to spaces which people use: mechanical things, air, electricity. The building can be seen from all sides. Yet electric wires, garbage cans, light and power meters clutter the rear of the church. The argument for the presence of this clutter is that there is not enough money to conceal it all—yet, the fact remains that it makes an unsightly appearance.

There is a sanctuary within the center box. Looking up, one sees the prime source of light for the pathway
entrance and, in a slightly altered way, for all of the peripheral buildings. The building shown cut explains how sunlight is effectively allowed into the building. The primary reason for the shape of the peripheral buildings is to provide a source of natural light. At the entry, light enters into the pastor's office through a second sheet of glass.

The roofs of the peripheral buildings are lifted toward the center to allow sunshine to come into the building on all sides. Light gives definition to form. All of the buildings are otherwise closed except for the pastor's office. They all open inward. They all receive a consistent source of light. They are all gotten to by the same system of circulation.

It is likely that the architect did not even feel obligated to draw what he felt the exterior of his building ought to look like because his ideas of...
light entering the building in a systematic way) (2. of composition of elements) had already helped him a long way toward determining the visual character of the building. The central box contains a sanctuary. Its central entry leads one beneath a free standing balcony supported only on each of four corners by a column. The altar is directly ahead. The light source, one now grasps, is clearly expressed giving the cross at the top of the sanctuary much visual significance and emotional strength. The roof of the room adds to its character. It is made up of exposed wood trusses.

The formal nature of the episcopalian belief dictates a central isle giving importance to procession in church ceremony. Looking to the rear of the church, we recognize the totally free standing balcony. The supports of the balcony lead us to a major issue in the appreciation of this building. The free standing wood-clad balcony spans the
width of the sanctuary on what appears to be four wood columns. A single piece of wood could not possibly span the length of the balcony. There must be some stiffer material hidden in the balcony. More than likely for economy and light weight it is steel. If we look very closely at the columns, we see on each one four slats creating a wood box which appears to support the corner of the balcony. The boxes are in themselves too flimsy to be structural. They must, therefore, enclose a stiffer column; again, probably steel. This method of construction is found elsewhere in the building. Having observed various phases of construction, it was seen where long spans were needed and heavy weights were carried steel was used in the place of wood. The big question here is: ought this to influence our impressions on the worth of the whole building? Was it structural purity that the architect was striving for? If it was not
purity, then what was important to him? 
What carried a greater significance in 
the design? It is really a long while 
after one has entered into the sanctuary 
that he even begins to be aware of the 
supports for the balcony because their 
color and material and the dark light 
in the back of the room make them blend 
into the background of the walls. A 
purpose of this was to actually create 
the illusion of the overhead balcony 
floating in space away from the walls. 
The reason that the architect did this 
was to strengthen the importance of the 
complete space of the sanctuary in which 
he placed seating for people upstairs 
and downstairs. The balcony is an iso-
lated element in the whole space. Per-
haps a more important reason is to 
emphasize the significance of the pro-
cessional axial entry, where, upon 
immediate arrival in the sanctuary, the 
dark space beneath the low floating 
balcony is very compressed. Walking 
toward the central altar brings the
viewer out from the compressed space in the rear of the sanctuary into the high space of the sanctuary. From this example, therefore, we can conclude that the intentions of the architect were directed not toward a pure expression of structural elements such as columns and beams, but rather toward a clear definition of space with systems of light. This is true not only in the main entry and the classroom areas (where skylights span the width of the rooms) but particularly in the sanctuary where one light source over the altar is the primary architectural element which gives emotional definition to the space.

The altar is the primary focus of the sanctuary. It is in the dominant place in the sanctuary not only because of its central position, but because of its relationship to the skylight above. Everything in the church, including the activities within the peripheral
buildings, is focused toward the altar. It is clear now that for many reasons the exterior buildings are very much closed and turned inward. All light comes from within. Natural light is a key to the building's unity. Artificial light is used as a supplement.

However, there are many more ways in which this building has strived to achieve unity. Consider the materials of the church. On the exterior there are only two materials. Up to a constant height throughout the church a single material—brick—is utilized. The brick is carried into the walkway so that there is a continuity between the exterior and the interior. In fact, the brick, coursed to the same height, is brought into the sanctuary on all walls. On the exterior above the brick, wood shingles are used throughout: On the angular walls, the roofs, and the vertical walls of the sanctuary. Wood paneling in the
walkway perpetuates the unity created by various uses of a single material. Exposed studs and trusses in the sanctuary carry the use of a single material even further. Therefore, another method that the architect has used to achieve unity is in the consistent use of two basic materials. One possible contradiction is that although the architect concealed steel in balcony columns, he exposed wood structure in the sanctuary walls.

He has achieved further unity in the consistent relationship of the peripheral buildings to the central sanctuary and to the walkway which links them together. Each pitched roof allows light to enter the volume in a consistent manner. Unity is further achieved by a very clear use of exterior volumetric relationships. From a distance and up close the sanctuary of the church is clearly expressed as a dominant interior space in the exterior composition.
The church is very well detailed: This is particularly significant in view of the fact the construction budget was so low. Poor detailing is found only in places where brick and wood join. In all cases where wood meets wood and brick meets brick, detailing is excellent. This is true not just of surface paneling but structural supports for trusses, simply assembled by bolting together a large number of small studs.

Careful detailing is also found at doorways, mechanical wood louvre vents, and air conditioning ventilators. One significant weakness in material detailing is in the sloppy use of the metal strip which caps the brick wall. It is visually disruptive because it is not coordinated either with the color or texture or general character of the shingles above or the brick below. The strip does not unify the materials; rather it creates a visual separation. One might ask why, if complete unity
all brick were not used on the exterior of the peripheral buildings. Why are the side walls broken into two geometric elements? For waterproofing, the metal strips seriously disrupt an already disjointed wall.

In conclusion, the church successfully announces itself as an important focus for community life. It can be evaluated on the basis of simplicity and the reliance on the use of light as a way to define many different kinds of spaces: (a) circulation, (b) classrooms and offices, and (c) central sanctuary.

The building cannot be judged on the basis of structural purity, because the architect used a combination of structural techniques, some of which are concealed to achieve further purposes. Those purposes are distinct spacial characteristics. Structural purity is subservient to the importance of the emotional character of the sanctuary
and a variety of ancillary spaces in the peripheral volumes. The architect is more concerned with contrasts and variations in light than in eloquent and expensive details in the use of materials. He is more interested in giving his building central importance within the community than in making it a sculptural jewel in itself, disinterested in its environment.

SUMMARY

St. Barnabus and St. Thomas were studied with a view toward exploring ways to evaluate the effectiveness of buildings.

There was no formal, ordered investigation; rather, an almost random search for yardsticks with which to measure the effectiveness of the buildings.

The college and church were chosen as subjects for this investigation purposely for their simplicity.
CHAPTER X
DEMONSTRATION

PURPOSE

The purpose of this demonstration is to establish two basic points. The first is that a systematic method of looking at buildings can influence people's opinions about architecture. The second is that the method can have real value in offering a direction toward evaluating the performance of buildings.

METHOD

Two groups of people will be used to demonstrate this method. One member of each group will examine one of several buildings in Houston. For example, a member of group A and group B will examine one building which they will evaluate according to any value scale which they think will help them to understand the building. The representative of each group will present
a written report on his findings. A short time later the representative of each group will issue a second report. The representative of group B in this case will apply suggested method of evaluation as a way to investigate the building. His counterpart in group A after the same period of time, will again present his evaluation, without being exposed to the questions. The purpose of this procedure is to eliminate some possible misinterpretations about the demonstration so that the real influence of the questions can be assured.

It is certainly very possible that between the first and the second report, other influences than the questions may have affected the opinion of the subjects. Group A, whose representatives wrote their own "unstructured" evaluations, act as a control. They help to show that the question set, and not extraneous influences, helped to form
the opinions of the representatives in group B. Both groups experienced approximately the same time lapse, yet, hopefully, the difference between the two represents the influence of the question set.

The second point of the demonstration is to establish the validity of the method. This will be done through evaluating the progress of the two groups, showing that group B, having used the question set, exercises better judgment.

EVALUATION

There are many ways in which the success of the questions can be traced. One simple way will be used which compares answers of the groups in their second report, that is where group B, after having written reports without previous exposure, now evaluates the building on the basis of the question set. Group A will repeat the initial process of
evaluating the building according to personal opinions. The answers of each group will be tested by finding out which group was more attendant to the significant forces acting on the building. For example, the categories of function, economy, people, place, and time will be used as yardsticks to measure the success of the answers.

CONCLUSION

It is hoped in this way to demonstrate that the use of a methodical inquiry will be more comprehensive than random opinions when evaluating the performance of buildings.
A QUESTION SET TO EVALUATE THE EFFECTIVENESS OF BUILDINGS*

When evaluating buildings, personal judgments such as "I like it," or "I don't like it," have value only when supported by careful investigation and analysis.

The person interested in finding out how well buildings perform encounters innumerable problems. Buildings are all so different from each other today because they serve so many different functions; they respond to location in unique ways. Other variables such as clients and traditions add to the problems.

Most difficult of all for the observer to understand is the variety of solutions by different architects for very similar problems.

*This document, along with the following questions, was given to subjects as a basis to evaluate the effectiveness of buildings in the second part of the experiment.
It is not always easy to understand architects' intentions through their works. But if a way can be found to evaluate each building based on its designer's intentions, there is a strong likelihood that the observer can have a better appreciation of that building as well as be in a better position to evaluate how well it performs its intended functions.

The following questions, then, are offered as a first step toward being able to state an educated opinion about the performance of buildings. Perhaps some questions have more relevance than others in a particular building; perhaps some have no relevance at all. But if new questions arise from a particular building, the observer is encouraged to suggest others.

After testing the building with such a probe, an opinion such as "I like it," or "I don't like it," will surely be more defensible.
The questions are organized on the basis of how important forces such as function, economy, time, location, and people influence the total organization and visual order of the building. The first such force to be considered is LOCATION.

HOW CAN LOCATION INFLUENCE WHAT CAN BE PERCEIVED IN BUILDINGS?

1. What characteristics of the building can be identified with the South Central Texas Region?
   a. In terms of the individual building as a member of a society of buildings.
   b. The view to and from the building.
   c. The relationship of the building to the street.

2. How do topography and special site conditions affect the building?

3. In this region the weather is hot and humid. There are occasional strong winds. How does the building
respond to these conditions? Does it have sun control devices?

**TIME**

1. Are there any functions the building serves which are unique to the twentieth century, such as an office building or an airport?

2. In what unique ways were these functions given a visual expression?

3. Has the building imitated any traditional styles?

4. Do you think that these imitations are a direct solution to any important problem with which the building is confronted?

5. Architecture is not the application of unrelated facades to plans. In what way does the building exterior help to clearly express any sort of internal organization?
6. Are style-pictures of the past applied to the building in order to attract attention for commercial purposes? Do you think this is valid? Why, or why not?

7. Today it is irrelevant to apply pictures of historical styles to modern problems. Does the building falter in this way? How?

8. Many principles giving order to buildings have been historically tested and are applicable at any time with emphasis applied to one principle or another. For example, clear structure, the use of light to define space, appropriate use of materials, appropriate scale are all ideas which can be found in architecture throughout history. In what way is the building structured upon any of these principles? Have these principles been used? How
are they applied? In what way does any kind of visual order result?

9. The reason why many classical facades failed when they were applied to the factories, commercial, and residential buildings of the 19th century is that they were spiritually and functionally divorced from the activities within and from new technology. Does the building you are looking at represent this failure? Why? How?

10. Pointed arch shapes on churches and office buildings are unreal because, as honest structuring, they are too costly to build. They can be classified, therefore, as scenery, but not architecture, if they are merely un-structured pictorial effects. If a "structural" shape such as pointed arch
is built in plaster, a non-structural surfacing material, one can assume that it is not bearing much weight. If it can be built in plaster, it cannot bear weight. Are there any components of the building, such as windows, columns, or arches which are additive in this way? In what sense are they helpful or detrimental?

Windows without glass, balconies that were designed not to be used, or any other fakes can only be detrimental to the building. Remember, architecture is real.

Can you look further for fakery? Are there false roofs or columns? Do steps lead to places you might want to go? Is there false space? Are there spaces which go nowhere?
HOW DOES ECONOMY AFFECT WHAT CAN BE PERCEIVED IN BUILDINGS?

1. One of the most economical advantages of the production line manufacturing process is part-oriented assemblage. In what way does the building take advantage of this kind of industrialization?

2. Another advantage of modern production line techniques is the capability of establishing, with a high degree of precision, the size and joining of materials. Are any materials used to their full advantage in terms of precision detailing? Is it important in this particular building?

3. An efficient plan is almost a prerequisite to successful architecture. What characteristics of the plan help to establish its efficiency, such as people movement and no wasted space?
4. The most efficient components are a direct response to their functions. For example, a window is transparent in order to provide view and light. What components (such as could be found in structure or any use of building materials) directly represent a clear response to their intended function?

5. Economy has often been defined as value received, not just for money, but from maximum dignity of visual restraint. Where in the building do you find a dignity of restraint?

**HOW CAN FUNCTION INFLUENCE WHAT CAN BE SEEN IN BUILDINGS?**

1. Buildings can have many different kinds of functions. For example, all buildings shelter people from the weather, but let us consider function here as the specific
physical utility of each building. How does structure respond to the intended function of the building?

2. How does the plan of organization respond to and express the intended function?

3. Are any details influenced by prime function? In what way?

4. Is the building a unique visual symbol of its intended function? Office buildings have sometimes been referred to as cathedrals of the twentieth century. This is their symbolic content. It implies their current importance among building types. Does this building contain any strong spiritual content?

5. Is there a hierarchy of spaces in the building?
6. Are some spaces given more area and more important locations than others? What are they? Where are they? Why are they there?

7. Is there a distinguishable visual relationship between spaces for the mechanical equipment which serves people--spaces to the people spaces themselves? Is it important in the building that this relationship exist? Much space in building is allocated to service functions, such as distributing fresh air, power, and communications. Are these functions given a visual expression? Should they in this case?

8. One of the most explicit critics of art and architecture in the early 19th century was Horatio Greenough. One of his best-known ideas was that, "Beauty is the promise of function; action is the presence of function, and
character is the record of function." An interpretation of his idea is that, if buildings are successful, their functions are visually expressed in a clear way.

There are three different ways of looking at the same function: as a promise of something to come, as something present, and as a record of what has been.

What visual characteristics of the building promise to you the presence of any given function? Did you find it present? After you found it, where else in the building in terms of structural details or plan organization did you find it recorded?

9. Greenough cited the "Anatomic connection" between boat construction and the purpose of boats; to ride "wind and waves." He asks that, if this construction has been attained in machines and
such buildings "as make departure from it fatal, as in bridges and scaffolding, why should we fear its immediate use in building construction?" Do you see any such "anatomic connections" between construction and purpose in the building?

10. For the architect, Louis Sullivan, forms and functions were inseparable. He says that, "In nature a form exists because of its functions, function finds or is engaged in finding its forms."

This follows for both the whole of the building and all of its parts.

Are there parts of the building which are not apparently a direct expression of any function? Are there any parts through which you cannot read a function?
11. Sullivan deplored incongruent combinations of parts. Based on his form-function relationship, he cited the absurdity of "pumpkin bearing frogs," and "sparrows in the forms of whales picking up crumbs in the street."

Does the building contain any such seemingly incongruous relationships spatially? Structurally? Formally?

HOW DO PEOPLE INFLUENCE WHAT CAN BE PERCEIVED IN BUILDINGS?

1. Frequently, specific environmental characteristics are necessary for human activity. For example, a large office building always must supply the optimum amount of light and space for office workers.

Houses and apartments must afford privacy.

Does the building go beyond the demands of construction and economy to meet any specific human needs?
What are those needs? How are they answered?

2. How does the building visually reflect the spirit of the activity of the people within?

3. Can the building be best appreciated with, or without the presence of people?

4. A society's cultural values are frequently, if not inadvertently, implanted in architectural concepts. For example, if we see a tall building, the implications are savings in land cost, efficiency of movement of people, the nature of the function: it could be an office building.

What characteristics of the building help you to read some important cultural values which were a part of the human input which motivated the architectural concept, such as
a need to create the building
as a symbol for the owner.

5. Garret Rietveld, a Dutch architect who practiced in the early part of the 20th century, said that, "Architecture is not a matter of beauty or ugliness, but of clarity . . . good architecture is a fragment of reality which force a partial expansion of self. It is the background of our life --neither more beautiful or ugly, but, if it is good; CLEAR."

Does the building clearly serve people's needs as a framework and background for their life within? How?

6. Does the structural framework of the building clearly facilitate different phases of that activity? For example, is the system of
moving people from place to place clear and simple? What other phases are expressed clearly?

7. Norburg Schulz, the Norwegian critic of architecture, goes on to say that buildings must provide visual and physical clarity to the framework for human activity.

If there is visual chaos, such as unrelated materials or a disorganized structure, how does it disrupt the activity within? How could this chaos have been avoided?

8. Buildings usually cannot be appreciated just on their visual merit, but rather can be more fully understood as containers of human activities. Rietveld said that, "Man, not the product, is the aim."

Does the building contain any forms which ignore man as the aim?
WHAT IMPORTANT VISUAL CHARACTERISTICS CAN BE PERCEIVED IN BUILDINGS?

1. What is seen can be appreciated in terms of basic elements and how they interact on each other. Elements can be considered as spaces and boundaries of spaces: What are the significant elements of the building?

2. One way to evaluate the successfulness of these elements is to consider the many characteristics of scale.

Generally, scale can be considered as the relationship between real and perceived size. For example, a human scale denotes the measurement of the relative size of people to objects in their environment.

But in architecture, scale also has a structural connotation. For example, what is the right size for a certain kind of structure? If a
concrete shell can span one hundred feet, should that same structure span ten feet?

Scale has material connotation as well. A brick has a perceptible, measurable scale. So does slate.

What spacial or structural or material characteristics of the building help to define its scale? When you are approaching the building have your anticipations of its real size changed?

3. Does the building look larger or smaller than it really is? From a distance? Up close? Why?

Do the sizes of structural members such as columns and beams appear to be appropriate for lengths of spans? Why?
4. Space is defined by containers. Does the building act as a container of exterior space? What elements define interior spaces? Does light help to define any interior spaces? Light can frequently control the importance of spaces. Glass is used to allow light into the interior of buildings. Where is this done most effectively? Why?

5. Voids are openings in surfaces beyond which can be perceived more space. Where are voids used effectively? Why are they effective?

6. A space container can be perceived as a volume, whereas a mass can be seen to have solidity and weight like a rock. Does the building appear to be a volume, or a mass—from a distance? up close? Why?
7. Should the building be a different shape and have a different structure if it were to be one-half its actual size? Twice its size?

8. We can frequently measure the size of surfaces if we comprehend the size of individual units within those surfaces such as brick in a wall. Do you find any surfaces with such measureable units which help you to measure yourself against the size of the building? Where?


10. The dominating element in a space becomes a focus. Is there a focus in any major space which becomes a magnetic attraction for people? Why is it there? What is it?
11. Many architects believe that all buildings should be organized so that people always move toward a central element, such as one main space. Is the building organized on that basis? Should it be? If it is, what is the function of the main space?

12. Symmetry in compositions implies an equality of elements. For example, if the entry of a building is in the middle, then this implies equal areas and functions on both sides—otherwise, the entry could not be there. Is the building symmetrical? Does the symmetry express in equality of elements? What are those elements? Should the building not have been symmetrical, if it is? Why?

13. Do you recognize any consistency in the way in which the building is ordered structurally? For
example, are similar components such as columns repeated in an ordered way when repetative circumstances are incurred? For example, is there a consistency in the ground connection?

14. Articulation can be said to represent clarity in the relationship of parts to parts, and parts to whole. Do you sense a degree of clarity in the overall organization of the building's plan? What is the ordering idea which governs the plan? For example, dispersal from a central point or collection at a central point.

15. Do you sense that there is clear transition in joining different materials together, such as wood to steel, concrete to steel, or glass to steel? In this sense, are details articulated well? Are details articulated well enough
to have a clear relationship to the whole concept of the building? What is that relationship?

16. Circulation, the movement of people to and through buildings, implies a sense of departure and arrival, and a clear orientation along a given path.

Does the building have a sense of arrival and departure? How does this work? With terraces, landscaping, structure? Is interior circulation clear and direct? That is, does it offer a clear orientation along a given path?

Does the circulation concept express exactly how people really do move most easily?

Discuss your answers in terms of exterior and interior circulation, in both vertical and horizontal pathways.
17. Dimensions are distances between points; proportions are the relationships between dimensions. For example, if a wall is ten feet high and five feet long, the proportion between height and length is two to one.

If we see a wall forty feet high and twenty feet long, the size is greater but the proportions are similar. If dimensions are changed, and proportions retained, any given element can change scale.

What are your ideas concerning the proportions of the entire volume of the building?

Do the proportions logically support the:

- structural system
- function
- circulation system

If they do not, what characteristics force them out of balance?
18. In successful architecture, the whole is greater than the sum of parts. The difference is the symbolic representation of the spirit of the human activity in the building. How is that spirit symbolically represented? Can the building have value if it does not symbolically represent the spirit of its function?
Lovett Hall, Rice University
Houston, Texas
Lovett Hall is an administration building, but at first meeting with this building, I wonder why a school of 2,500 students, such as Rice, needs so much administration space. And I am forced to ask whether this building needs as much of what it has. First impressions may or may not be closer to a person's actual feelings than his final conclusion after much analysis, but at first glance, this building just has too much. It is as if its designer had so many wonderful ideas and desired such a magnificent monument that he was afraid to leave anything out. I can look at this building in any number of different ways and it never fails to give me this same impression: it is a conglomeration, a huge monster with hundreds of added things which do nothing but detract from each other—from tall, thin round columns to short, thick round ones; from short, average round columns to medium, average square ones; all apertures seem to contradict themselves by position, size, and intensity. It is a building so complex, yet so incoherent that it is unbelievably hard to form even a shallow image. If one takes the time to compare it with its surroundings, it fits in nicely with limestone and brick columns and sculpture, thick brick joints, and unusual laid patterns on walls and floors.
It is traditional and sets a mood that prevails over the Rice campus of its serenity and calmness, and at the same time, its detachment from the "outside world." Taken from its habitat and placed in a downtown or even suburban business area, its hideous form and appearance would be obvious. Taken where it is, it has upon the people that walk around, through and by it the same effect of that "outside world"—nothing whatsoever. This is one of those magnificent pieces of art that you see in a museum that people are totally unaware of in its natural order.

I do not like it and cannot say why, and yet it is one of those relics that demands respect for its age, that shows from its green, tarnished roof to its worn marble steps.
Sitting in the middle of William Rice's Marsh on an early Monday morning in smog-bound Houston, Lovett Hall, the administration building of Rice University, strikes me as a huge, fog-bound ship with a large torpedo hole right through the middle.

To the casual observer, this hole—sally port—serves no purpose except to give a nice frame to Willy's statue when approaching from the outside world, through the front gates of Rice. From the semi-quadrangle, however, this sally port is seen to divide the building's exterior into two distinctive halves. The main pattern of this exterior wall of Lovett is maintained by the equal spacing in both sides of the relative slender columns in the upper half and the short squatter columns along the cloister. Here the total uniformity of the building ends. The wall space between each two columns on the left is filled at the bottom with a door and at the top with two windows. In contrast to this, the wall space of the right is filled alternately at the bottom with a door and then a small window, and at the top with three windows.

The theme of the building is not pleasing repetition. Not familiar with the style of the building and what is good
about it, I can only go with my own impression. The building itself is quite imposing, I guess you could say. The stone-work seems to go great, the carving done in the stone also adds to the overall general mass confusion or conglomeration that characterizes the building. Taken in contrast to, say, Fondren Library, we can see the starkness—the nondescriptive trashiness of the library—could have been improved by addition of much of what clutters up the administration building. Taken from a distance, Lovett Hall, with all its trimmings, is an exquisite edifice—and it makes a nice picture.
I. FLOW PATTERNS

A. Lovett's ornamented "promenade portico" is just an inter-office runway. Visitors from dormitory or classroom buildings to Lovett, approach it at angles, as trails across the quadrangle lawn show. Although the portico is linked to the Physics Building's, the two are estranged from the Fondren portico, lessening the value of both loggia systems.

B. A vertical circulation system is used (local corridors off each of the four stairwells), they being connected by a winding hall on the top floor. All drain to doors on the rear portico (I, A).

1. Rest room facilities are duplicated needlessly, and are hard to get to (men's and women's on different floors).

2. It is a roundabout trip from, for instance, the Pursar's office to the Admissions office, even for "savants" of the structure.

3. The tower stairwell winds upwards unmodified, until it stops before a storage closet. The only window there with a view, is too high to
look out of.

4. The stairwells are gloomy, and the stone walls for some reason have received a wainscotting of green paint. The banisters hewn from the wall in one stairwell are ineffective and dirty.

II. ROOM-USE PATTERNS

A. Classrooms are on the top floor. Large groups of people must trek past offices harboring half as many people, and who have no use for the noise (including the President's office).

B. Professorial offices where students are supposed to have access to their professors at certain times, are sprinkled about the circulation wells door jamb-to-keyhole with administrative offices.

C. There are not any logical ones, in short.

III. FUNCTION ARTICULATION

A. Pipes are randomly articulated in corridors and rooms, but blushingly camouflaged with paint.

B. The four vertical circulation patterns must be quite detrimental to a sense of unity amongst administrators, and is certainly confusing to visitors trying to find their way around.

C. The stairwell doors opening onto the portico are the same size as other doors, yet get heavy use and show it. They are awkwardly separated from
the portico by some steps. No one of them looks half like an entry to a structure housing the University nerve center (administration): this is confusing to strangers.

D. The huge arch stuck in the middle of Lovett indicating it as a gateway to the University campus, is pertinent only to total strangers. These visitors are ushered by it onto the Rice quadrangle, but are given no strong clue as to where to go for information (see IV, E).

E. Lovett is lavishly ornamented and peculiarly designed. Other campus buildings have made half-hearted attempts to copy its style. They have, thus, thwarted Lovett's only chance of expressing itself as definitely the first building, hence the campus' birthplace and probably its nerve center. Possibly only the poor copy efforts save this situation. At any rate, Lovett does not otherwise express its interior order outside, nor its function (surface indication of the vertical flow systems, or a big building entry indicating it as headquarters).

IV. ADDENDA AND GENERAL COMMENT

A. Lovett's delightful sculpture is lost in general facade confusion, called by one instructor "Texas Boorish." I would prefer to dub it "Texas Eclectic."
It gives flavor to the campus, at any rate.

B. Lovett is gloomy inside. The windows provide little meaningful orientation to outside spaces and light. The interior is full of doors and small spaces, like a honeycomb. One has no orientation inside to the size of the building, either in open-center stairwells (they wind around a wall), or in long corridors (the top-floor one wanders about). Dank stone is everywhere. The only relation between the interior and the facades is that both are chaotic.

C. The balconies (which are really outside rooms for surveying the campus and thinking) are most pleasing, except the large recessed two facing the main gates. These are unused, as they get poor ventilation and little sun.

D. The building at large is poorly cross-ventilated, and odors lingered in the rooms the one day I toured through it (dankness, door-hinge oil, blackboard chalk, varnish). In this respect, air conditioning must be blessed by Lovett's office staffs.

E. As an administration building, Lovett has no general information-reception office for visitors.

V. SUMMATION AND SUGGESTIONS

A. Lovett is a monument, and monuments are preserved even if they express the desire to collapse. I am
sure that all who know Lovett will treasure it as a monument to human pride and human frailty. So it will remain, and with good symbolic and historical reason.

B. 1. I suggest that a colorful information kiosk be put in Lovett's huge vacant archway. This could be removed for graduation ceremonies, possibly. (I have the idea that Lovett's designers envisioned the arch as a backdrop for the valedictorian speaker of graduating classes, who could look beyond him to the great big blue (or clouds) future). It would serve as an interesting building focal point, and be of considerable value to first-time visitors desiring directions to something or somebody (as well as new students and faculty).

2. I suggest that Lovett's interior be either provided with very strong lighting in the corridors, or else have those corridors painted white. This might brighten the monastic atmosphere, and some wall maps of Lovett's floor and office plan might help time-pressed and/or irritable visitors as well as new students.

3. If possible, classrooms should be shifted to lower-floor rooms, professorial offices grouped
on one stairwell, and the President's office be moved to a symbolic location (such as the room over the great arch facing the gates) since Lovett is more or less a symbolic edifice.
RESPONSE TO QUESTIONS IN
A QUESTION SET TO EVALUATE THE EFFECTIVENESS OF BUILDINGS

The following responses presume that the reader has a copy of the questions given in the essay above, and, also, that he makes use of or at least has available the maps that accompany this outline.

LOCATION

1. a. Lovett set a red and arcade and tile roof precedent for the buildings on Rice campus.

b. It does not impress, except in an absurdist fashion. Its excellent facade decoration is lost on the ground-level viewer (e.g., stone acorns at the corners of the third floor balconies).

c. Lovett serves as the climax of the road into Rice campus (the main one). It also defines road axes for the rest of the campus.

2. Not at all, unless Lovett has a special foundation due to the marshy conditions of Rice campus.

3. Lovett successfully defeats any chance winds which might be so successful as to penetrate it. Its ungainly air-trap terraces on the entry side serve as sun shades, as does the rear arcade, and the thick walls of the structure.
1. The accounting office has some modern machinery in it, and the building in general is given over to office use.

2. In no unique way.

3. Yes: it is reminiscent of the Doge Palace in Venice, and north Italian architecture in general.

4. To give the building its due as much as possible, it could be said that they are: Lovett was the first building of a university in a still very woolly turn-of-the-century Texas. A precedent of aged scholasticism had to be asserted, to give the college's early inhabitants moral support, and to assure Houstonians that they had a solid college that would be worth giving money to. Lovett solved problems extant at the time of its building. It was Kulture for Will Rice's Marsh.

5. In no way at all.

6. It was valid when Lovett was built, and for a good number of years thereafter.

7. Yes. Lovett is an anachronism today, and a horrid structure to cram offices into.

8. Lovett A) disguises with exterior columns its interior-column support syste; b) makes fairly good use of light via its highly sculpted facades; c) uses materials handy to the area--brick--and also employs Italian marble
reminiscent of its Italian design; d) affects a grandiose exterior scale, and a crypt-like interior scale.

There is no interior visual order, and not very much outside, either as matching halves of the facade use different detailing (e.g. fewer windows on one side of rear, second floor).

9. Partly. Although Lovett's design is functionally divorced, it serves the spiritual need mentioned in (4) of this section. Lovett also did not seek to emphasize new technology, but once again in deference to the spirit that the building sought to generate for the fledgling campus.

10. Lovett's exterior columns are a bunch of structural foolishness, but they encourage a pleasant play of light, and reinforced the idea (in the minds of early Houstonians) of classicism. (See (4), this section.) Lovett has a) phony windows (3rd floor windows above Cashier's cavern); b) phony balconies attendant upon some of the phony windows. Many balconies, though usable, are not used, because a) Lovett is an office building; b) 'air conditioners prevail everywhere because no breeze can get through the place.

Lovett's problem is not so much false space as dissected space. The building is a hackneyed honeycomb. No space is lost, but then again it is conserved in a very schizoid fashion.
HOW DOES ECONOMY AFFECT WHAT CAN
BE PERCEIVED IN BUILDINGS?

1. In no manner.

2. Lovett is a good example of traditional masonry, though long use and many renovations (apparently) disguise this fact. Lovett's detailing is a good example of the stone-mason's art.

3. People movement in Lovett is horrible. Vertical corridor systems are simply foolish for its current usage. Refer to reasons given in first analysis.

4. Well, the floors are fairly level. And the roof does not leak too often, or at least on one I talked with complained about it. The stair treads are not too disproportionate to the average human foot. The halls are drafty and gloomy, hence enhance their function as people-movers.

5. There is no dignity of restraint to be found in Lovett. Marble is splashed about the building, from exterior columns to toilet partitions. The exterior is just as Moorish-rococco as it can be. It's sort of fun in this respect. Funny, to be more explicit.

HOW CAN FUNCTION INFLUENCE WHAT CAN
BE PERCEIVED IN BUILDINGS?

1. Not at all.

2. Ibid.
3. Ibid.
4. See (4) previous part.
5. No. (except for that gaping mouth of a portculis).
6. The people that handle money have the biggest room.
7. Double no.
8. Last paragraph: a) the arch suggests entry building.
    b) the arch is unused, for the most part, except ceremoniously.
    c) the main arch reflects in rear arches.
9. No.
10. Double yes.
11. Triple yes. Exterior columns hold up nothing, symmetry does not reflect interior function, the big arch is . . . well, a big arch.

HOW CAN PEOPLE INFLUENCE WHAT CAN BE PERCEIVED IN BUILDINGS?

1. See (4), two parts back.
2. No.
3. Without their presence.
4. See (4), two parts back.
5. No.
6. No, none are.
7. Vertical corridors (as mentioned in my first essay) discourage horizontal communication between offices,
while not replacing it with much up-and-down communication—who likes to walk up and down gloomy un-air-conditioned stairwells. It would not have been very easy to orient the building to a horizontal corridor, however; the building's symbolic craw is in the way. In short, all considerations were subverted before the idea of creating a symbol for the new campus—an enormous trinket. The architect forgot that great monuments are also greatly functional; people like the view from the Lincoln Memorial steps, and the airy interior. Lovett hogs the tower with offices and no window for a visitor to gaze out of, and the interior is anything but airy (unless you're a secretary in the cashier's cavern). In brief, Lovett is a pretty picture.

8. Yes. Contorted corridors, bulky awkward doors with steps in front of them so you must keep your balance while getting the leverage to open them (registrar's door, admission's door), getid stairwells, rampant confusion for the uninitiated (each time I visited Lovett to assay it, I met someone who was lost in hunting for an office).

WHAT CAN BE PERCEIVED IN BUILDINGS?

1. The arch.
2. Bricks are used, though the building seems a bit smaller close up. It looks vast coming in the main gates (tiny
windows, elaborate little balconies, the vast arch).

3. See above. Exterior arches and columns are excessive.

4. Yes. The arch.

None.

No, unless you consider the boxed-in terraces interior spaces.

Nowhere.

5. The arch. Makes an effective statement about entry to the university campus, though a bit facetiously. So you walk through it. Where does the visitor go from there? No clue is offered.

6. It strikes me as a mass from the front (except the arch), and part volume from the back (the arcade).

7. Since Lovett pretends to be a triumphal arch independent of any transient and crass human needs, it could remain the same on any scale. A triumphal Roman arch in gothic Italian.

8. Yes, the windows and balconies.

9. The arch. See (5). It's big.

10. See (5).

11. See (5).

12. The symmetry does not reflect the building interior, but suggests a certain one-axis symmetry about the campus. The symmetry is not well carried out by the two-wing detailing, however.
13. Yes.

14. No. Arch does not serve the interior building.

15. Classically . . . classical.

16. No. Poorly. The arch is like a two-way colon, only ceremonial. No.

17. They fake grandeur.

18. The arch serves the campus concept, not the building it is stuck into. The spirit of Lovett's function is only reflected in--and regrettably so--the fake antiquity of its facade and structure, the superficiality of its appearance, with a deeper immobility slightly hinted at (end towers hedging the frilly window-work). Not a good image for an administration building.

FINAL COMMENTS

1) Lovett, as a building, belongs near the Venetian plaza it came from: near the heart of a medieval city. Old German village clock towers are pleasant because their tower rises serenely above their arch, through which rushes the crux of the village traffic. Lovett's arch is seldom used; its elaboration stands naked amidst verdant greenery.

2) If Lovett is to be used as an administrative center, its exterior symbolism should get matched by its interior
symbolism: a) put the President's offices in the tower; b) put the admissions office to just one side of the arch; c) put the alumni office on the other side of the arch. The rest of Lovett should slowly get turned into a museum for gifts to the University.

3) An information office should be put in a kiosk right in the middle of the arch. It would be reminiscent of Lovett's medieval inspiration (bright pageantry) and appropriate to the entryway.

4) The stairwells should be brightly painted, air conditioned, and carpeted, if they are to be effective channels between offices, and an appropriate entry to such posh quarters as the president's pad. Or is Lovett after some traces of an Arab casbah?
EVALUATION OF THE REPORTS

The representative of Team A in his first report calls Lovett Hall a conglomeration, a huge monster, complex, incoherent, far removed from the world beyond the campus: It would look absurd downtown. He does not like it, but believes that it demands respect for its age.

In his second report the same representative considers Lovett Hall to be a fog-bound ship with a "large torpedo hole right through the middle." He calls the building imposing, "but the stonework seems too great." The building is "an exquisite edifice, and it makes a nice picture."

The Team B representative in his first report presents a detailed if not slightly rambling disorganized criticism of the building.

In his second report, having used the question set, he reports the most comprehensive and thorough analysis among the members of Team B.

His first report is concerned primarily with the criticism of poor circulation patterns and a poor adaptation to the present uses of the building as the administration center of the university.

He gets high marks for generally touching on most of the functional weaknesses and symbolic strengths of the building,
such as the arch as an entry way. Verbosity sometimes adds color but does not clarify criticism.

"Pipes are randomly articulated in corridors and rooms but blushingly camouflaged with paint."

In his second report, the same representative has answered all of the questions thoroughly and in detail. He found most all of them useful in helping him to criticize the building. The judgment which evolves from his well documented analysis is that Lovett Hall has value only as a symbolic edifice and should be wholly designed as such, not just in terms of its position on the campus and its entry arch but its interior organization. He wants the president's office in the middle on top.

Concerning Location, he says that, "Lovett successfully defeats any chance winds which might be so successful as to penetrate it. Its ungainly air-trap terraces on the entry side serve as sun shades, as does the rear arcade, and the thick walls of the structure."

Concerning Time, his argument is lucid when he states that, "To give the building its due as much as possible, it could be said that they are: Lovett was the first building of a university in a still very woolly turn-of-the-century Texas."
A precedent of aged scholasticism had to be asserted, to
give the college's early inhabitants moral support, and to
assure Houstonians that they had a solid college that would
be worth giving money to. Lovett solved problems extant at
the time of its building. It was Kulture for Will Rice's
Marsh," and "Yes. Lovett is an anachronism today, and a
horrid structure to cram offices into," Also,

Lovett's exterior columns are a bunch of
structural foolishness, but they encourage
a pleasant play of light, and reinforced
the idea (in the minds of early Houstonians)
of classicism . . . Lovett has a) phony win-
dows (3rd floor windows above Cashier's
cavern); b) phony balconies attendant upon
some of the phony windows. Many balconies,
though usable, are not used, because
a) Lovett is an office building; b) air
conditioners prevail everywhere because no
breeze can get through the place.

Lovett's problem is not so much false space
as dissected space. The building is a hack-
neyed honeycomb. No space is lost, but then
again it is conserved in a very schizoid
fashion.

In discussing Economy, he has only this to say: "In no manner"

is it used.

Concerning Function, he gives a well detailed account in
saying that the way it is presently organized it does not
work.

"In short, all considerations were subverted before the idea
of creating a symbol for the new campus, an enormous trinket."
The architect forgot that great monuments are also greatly functional. . . . In brief, Lovett is a pretty picture."

Concerning the visual organization of the building, he considers the arch as the dominant element. But:

[It] makes an effective statement about entry to the university campus, though a bit facetiously. So you walk through it. Where does the visitor go from there? No clue is offered. . . . Since Lovett pretends to be a triumphal arch independent of any transient and crass human needs, it could remain the same on any scale. A triumphal Roman arch in gothic Italian. . . . The symmetry does not reflect the building interior, but suggests a certain one-axis symmetry about the campus. The symmetry is not well carried out by the two-wing detailing, however. . . . The arch is like a two-way colon, only ceremonial. . . . The arch serves the campus concept, not the building it is stuck into. The spirit of Lovett's function is only reflected in—and regretably so—the fake antiquity of its facade and structure, the superficiality of its appearance, with a deeper immobility slightly hinted at (end towers hedging the frilly window-work). Not a good image for an administration building.

In his final comments the representative states correctly that,

Lovett, as a building, belongs near the Venetian plaza it came from: near the heart of a medieval city. Old German village clock towers are pleasant because their tower rises serenely above their arch, through which rushes the crux of the village traffic. Lovett's arch is seldom used; its elaboration stands naked amidst verdant greenery.
The stairwells should be brightly painted, air conditioned, and carpeted, if they are to be effective channels between offices, and an appropriate entry to such posh quarters as the president's pad. Or is Lovett after some traces of an Arab casbah?

In his second report the representative of Team B has retained the colorful critique of his first report while crystallizing his ideas into a coherent and penetrating evaluation which leads him to understand how the building was once intended to be effective, and in what ways today the building is so terribly ineffective.

SUMMARY

In his first report the Team A representative expresses a dislike for the building without explaining his opinions in detail.

In the second report he reverses his field and states a liking for the building, calling it "an exquisite edifice," with equal lack of explanation.

The Team B representative expanded from a rather wordy, well detailed report to a concise, coherent analysis which was the basis for his sound judgment concerning the initial intentions and present ineffectiveness of the building. Its basic value is in its symbolism; its basic weakness is its lack of adequate facilities for a modern campus administration building.
The Columns Apartments
Houston, Texas
THE COLUMNS

I think that The Columns as a whole would be a pleasing place to live. The court onto which all the rooms open is very attractive and gives each apartment dweller a view of a beautiful spot. Without the court, one would only see the rather bleak area surrounding the building.

I think that the exterior of the building could have been improved. The colonial style of the building is destroyed somewhat by the long exterior walls of windows and columns. A more desirable effect could possibly have been achieved by breaking up the building into smaller units.

In relation to the adjacent apartment houses, I feel that The Columns is totally out of place. All of the neighboring buildings are of a French provincial or French chateau style. The colonial Columns is so completely different and does not at all fit into the surroundings.

The French style apartment house across the street from The Columns would not appeal to me as a place to live. While I think the building works better with its surroundings than The Columns does, as a single unit it is not a very pleasing sight. I like the French style design of the building as a nice design for an apartment complex of its type.
I think the traditional design gives one a more home-like feeling than living in an ultramodern building with hospital-like sterility. The contemporary is more suitable for a high-rise apartment building.

As an individual building, the French style apartments have a rather cheap look. They also fail to provide each apartment a view of a pleasing court or garden area. While some of the rooms do face a court, a very small one at that, many of them do not.
Generally I believe the Columns apartments would be a very desirable place to live. The exterior design pleases me though it could certainly be improved upon. The court in the center of each group of apartments gives each apartment owner a very pleasing view from his living room window. There may not be as much privacy as desired by some, but having never had any experience in apartment living I don't really know how much privacy I would want in an apartment or how much I would get in this particular building.

Considering the location of these apartments, I feel they do not fit with the nearby apartment buildings as well as they might in some other location. I'm not sure exactly how I feel about this. In most cases I feel that buildings in cities should be different from others around them for I feel that this is what makes a city interesting, but in this case perhaps a more desirable effect could have been achieved if everything was basically the same style.
The first impression: the approach is junky. There are too many buildings that don't relate. There is no provision for parking of cars out of sight—probably not enough car park space of any kind for residents and visitors; certainly no provision for out of sight parking. The Chateau Dijon has a very attractive vista down Street (if one ignores the cars). The apartments are attractive. I like the brick and shingles, and the long view down the street to the French postoffice is nice. The postoffice itself is great fun—sort of a grand folly.

My apartment suffers by comparison because it lacks the imagination and sense of fun. (Do architects tolerate such phrases?) of Chateau Dijon. Referring back to sense of fun, I think it matters in apartment units of this sort to have an "atmosphere" that is attractive. My apartment misses gracious living. Southern style is its bag, but it doesn't make it. The exterior is pleasant, but unimaginative and ultimately boring (Why? The proportions aren't generous, maybe. In the photograph the columns are graceless, too heavy. As the major decorative element in the facade, they should be handsome). The inner court was a very nice space. I don't know about summer heat, circulation of air: it could
be dreadful. Privacy, or lack of it, is another consideration here. Everyone's entry opens onto a communal area, which may be the easiest way to do it, but doesn't allow one much of a secret life.

Finally, the wrought iron railing is ugly. A railing on the second story is obviously necessary but doesn't have to be so ticky-tacky. Also, the curved stairway is bad: it is too light for the massiveness of the apartment building. The curve may be a good idea, but needs more weight.
Location

The flatness and lack of topographical variety (!) of Houston makes a special problem in relating a building to its site. It can be done with proper landscaping and use of indigenous materials, but most apartment units are simply stuck there, like mine. There is no effort made to relate the building to the neighboring apartment buildings, or to its site. There is no natural view, but neither has an effort been made to create a view.

The architect borrowed traditional devices for combating tropical climate conditions--perfectly valid solutions but improperly understood, it appears: the enclosed courtyard protects from the winds and sun, the deep porch overhang protects from the sun. In this instance, the paved court and light-reflecting pool can only intensify the heat and glare from the sun rather than absorbing them. A properly handled court can be a very pleasant thing, but this one has too much paving, too little planting, improper air flow (I'm guessing here). The overhang is still valid--with the building doubly exposed, front side and courtside, the air conditioning units have a heavier load. The deep overhang gives some relief.
An apartment building of this type is unique for the twentieth century in being a temporary residence for a very transient population. The style is imitative—borrows from the Southern Colonial manner of building. I wonder if an imitative style perhaps has value in this instance: the rootlessness of the average apartment dweller is a very real thing; if an apartment can tie in strongly enough with the past and provide instant history, or instant roots, in an attractive way, this may satisfy the inner man in some way (nicer than thumb sucking).

At any rate, it is certainly a "style picture of the past applied . . . to attract attention for commercial purposes." Borrowing from the past, a lack of imagination can be tolerated because imagination, after all, is the exception rather than the rule. One cannot expect always to find an imaginative solution to a given set of problems, but the plagiarising should be done with a proper understanding of the special problems and of the traditional (borrowed) solution, and, for goodness sake, a proper respect for aesthetic values.

My building has relatively little fakery, but I suspect this is more a matter of trimming costs than of any integrity of approach. The architect fell into the common trick of too large columns and too small shutters on the windows. Both are obvious fakes, but I am so conditioned to both that I
don't find the fakery as objectionable as I find the disregard for proper proportions. My architect did not have an eye for proportion—the wrought iron staircases are too light to relate properly to the mass of the building; the columns are ridiculously large for the depth of the porch.

Regarding your questions on economy, sophisticated industrial techniques and their effects on building, the builder of my apartment was satisfied with a very basic, unimaginative exterior. I dare say he made use of pre-assembled parts in the interior, but I am not informed enough to recognize what is pre-assembled and what is done on the spot. I think little use was made of pre-assembled detailed parts, etc.

Efficiency of movement and wasted space—How are the apartment serviced, garbage taken out, etc.? Do these units have an entrance other than the one that opens to the patio? They must—there is little enough privacy with all front entrances opening to the common patio.

The intended function is a dwelling for very impermanent tenants in a given income market—yes? The "plan of organization" doesn't really "respond," it simply furnishes the basic requirements in a very ordinary manner. This is not really an objectionable building—it simply has no merits, and in this respect, also, perhaps it is uniquely twentieth century. It has no spiritual content; it does not pretend to; the concept and effort were never a consideration.
The illusion of privacy is there, but it is not real. Shelter is provided; the patio and pool areas are there because an apartment without these can't find tenants. The building does not go beyond the demands of construction and economy to meet human needs. I think this building is a curious example of the inadvertant reflection of cultural values in an architect's concept—the point being the lack of spiritual content, the lack of imagination. This is a curious century and a curious culture (society?) with unlimited possibilities for excellence in all directions, but timid, unimaginative. Basic Beige, spiritually barren in spite of the possibilities. (Thus endeth the reading of the first lesson)
EVALUATION OF THE REPORTS

The Team "A" representative's description of the Columns Apartments includes such terms as "pleasing place to live," and "attractive." He would say that, "Traditional design gives one a more home-like feeling than living in an ultramodern building with hospital-like sterility. The contemporary is more suitable for a high-rise apartment."

None of his evaluations can be considered as in-depth thoughts beyond first impressions. His logic is faulty when he says modern assumes sterility.

His second visit to the Columns brought forth such observations as, "The exterior design pleases me. . . . [The] apartment owners have a pleasing view." The fact is that he says less this time than in his first report. His discussion of privacy is based on his own personal desires. The representative liked the building, without giving any thought at all to the realities of the function of an apartment building, the site, and the inherent eclectic characteristics of the building. His analysis is strictly on the surface.

In her first analysis of the Columns Apartments, the Team "B" representative presents a colorful criticism. She thinks the approach is "junky." She worries about parking and the absence of a "sense of fun" in the building. "My
apartment misses gracious living. Southern style is its bag, but it doesn't make it." She thinks the railings on the interior balcony are "ticky tacky."

In her second report, having used the question set, she becomes concerned with the problem of the lack of topographical variety in Houston. The building does not overcome this problem. She says that there is no effort to relate the building to the site or to any other apartment buildings nearby. There is no natural view, and no attempts are made to create a view.

She becomes concerned with climate. Conventional devices such as deep overhangs and a small central courtyard help to protect people from the hot rays of the sun. But the pool can only intensify glare. She criticizes the central court for lack of careful planting and too much glare-producing and heat-reflecting pavement.

She thinks this building is unique in the twentieth century for housing a transient public. The style is imitative--extracted from Southern Colonial. She wonders if this isn't an attempt to provide roots for the modern rootless man, but it is still "a style picture."

She also worries about fake, oversized columns, but most important to her is an inadvertant expression of strong weaknesses in modern American society. We are "Basic Beige," where we have the potential for achieving excellence. The
spiritually barren environment of the building is only a mirror reflection of the timidity and blindness of a society which lacks spiritual content. She concludes that the Columns is a dull, uninspired place to live.

SUMMARY

The Team "A" representative virtually neglected the forces which created the building. His discussion never delved beyond his impressions of attractiveness.

The representative of Team "B" progresses from a colorful critique of the attractiveness of the building to a penetrating investigation into its problems. The final result is a basically sound judgment of the building's worth.
The Jefferson Chemical Building
Houston, Texas
JEFFERSON CHEMICAL BUILDING

The most impressive thing about this building, that first catches your eye, is the long, thin white columns going up three stories. After that you notice the contrasting black reflective windows. I was quite impressed with the exterior. One thing I thought seemed out of place was the fourth floor. It occurred to me that this floor should be included in the arch system, with four-story columns. When I examined it, however, it didn't look nearly as bad as I thought it should. The designers handled it carefully so that it did not look like a large mass on little columns and, therefore, detracting from the arch motif. With its delicate framework and thin roof, the fourth floor does not catch your eye. Another nice touch was the continuation of the arch motif down to details like the balcony railings. The only criticisms of the exterior I have were the landscaping and the telephone poles. Unfortunately, the site was just large enough to accommodate the building; otherwise the majority of the adjoining land would not be parking lots. Once I tried turning around suddenly to see what caught my eye first, and the first thing I noticed was an unsightly telephone pole. It was hideous seeing that in front of a very attractive facade, like some perverted mind had put it
there out of jealousy. Also, I noticed the scarcity of entrances. There was one double door in the back with a sign saying to use other door which was on the opposite side. The only other way in was through the underground garage.

From the exterior I get the feeling the interior should be a three-story-high exhibition room or something of that sort with offices on the fourth floor. On the inside, however, there are only four nearly identical floors. The only impression of the tall exhibition center was two four-story atriums. The two criticisms that occur to me were reflecting glass which made it difficult to tell what you were really seeing--reality or reflection, and that the arch motif was not carried out inside. Nevertheless, the interior was well designed. Almost every room, I believe, had an exterior view. The service tower was between the courtyards. All hallways were short, rather than long, ugly tunnels. On all floors, around the atriums which had four glass sides, there were railings subtly placed for safety. In general, what furnishings there were were attractive, and I admired the employees' snack bar overlooking one courtyard, although I thought it would have been better located than near the main entrance.
In closing, let me say that the building itself was clever in concept, the crossing of vertical and horizontal lines. I think, however, that it would have been improved if the black and white was not such a stark contrast with the gray, and if the insets on the side had been deeper. However, the overall effect of the building (massive and great strength) fit in very well with the use of the building--a life insurance building.
This building strikes me as being very delicate with its black windows and thin white arches all around. This effect is spoiled slightly by the more solid looking top floor which is smaller than the rest of the levels and is above the arches. The railings all around the building reflect the arch motif, which is a good idea. Unfortunately, the site is quite restricted; so the landscaping is practically nil. Instead, the site is filled mostly with a parking lot aside from the building itself. Visually this detracts from the building, but I suppose it is a necessary evil. The biggest detraction I found in the building was telephone poles and wires. The first time I saw the building, I spun around suddenly to see which caught my eye first, the black windows or the white structure. The first thing I saw, however, was a telephone pole. Inside, the building was well-designed with short corridors and two pleasant atriums with skylights. However, the interior did not look like the exterior. That is, you couldn't really tell what kind of a building you were in until you saw the outside. There was no relationship between interior and exterior.
The Jefferson Chemical Building is a very pleasing building to observe. It seems to incorporate the good qualities of contemporary architecture while being embellished with a classical facade. The arches and pillars are most pleasing, giving a light and airy feeling to an otherwise typical boxlike modern building. The dark glass, while hiding the true structural members, sets off the beauty of the pillars and arches. I am sure these arches do serve the purpose of protecting the glass walls from rain and glare somewhat. Therefore, I believe that the outer decorations do serve some purpose other than for esthetics. The delicate grill work of the balcony further compliments the design with repetition of the arch pattern. The idea of the elevated building for parking underneath and grand entrance above enhances the building and gives it a very dramatic setting. The landscaping seems adequate but not particularly inspired.
On the other hand, I recognize certain faults such as poor quality glass which gives a sleazy look to the passing viewer. An overabundance use of glass seems to give the building a temporary and weak look. I do not believe the building will stand up to time and the elements.

However, the building's external elegance far outweighs its faults, and I would judge it to be an outstanding example of integrated architecture, principles, and ideals.
With a new basis for criticism, I will re-evaluate the Jefferson Chemical Building.

As for location, on its corner lot the building seems rather large for its site. It is also elevated, awkwardly in some respects in relation to surrounding buildings. It is not in a preconceived complex of buildings, and I don't believe it is any better or worse proportioned than its neighboring buildings. Within the building, looking out, one admires the drama of the view, and from the freeway the building looks very impressive.

The building faces south and the prevailing winds. With darkened glass and some overhanging roof areas, it seems to function fairly well in this respect.

Certainly, this office building does imitate, to a degree, a classical style but not without benefits to its general design. The arch pattern and valuting is quite beautiful, but these structures probably serve no direct or important function.

In general, this facade, though not strictly related to an important function, serves as an esthetically pleasing effect which I, the layman, consider valid to the office building as
to any other edifice.

I believe that under its decorative shell, this building is economically sound. It seems to take advantage of modern materials and latest methods of construction with very nice details as a result.

Certainly, the interior space is well done, with two elegant three-story atria which give abundant light to the interior space and give visual relief to the workers inside.

I think these atria are beautifully composed but do take a very large volume of the interior or enclosed space.

The mechanical equipment, restrooms, water fountains, and elevators are all placed in a central shaft that seems well devised.

The general plan seems to work well, and traffic areas seem well designed.

The building seems to satisfy the people who perform inside it. Even small offices seem spacious with literal use of glass and non-walled areas. I believe that most needs of the workers are well provided for. Of course, until one works within a space, he doesn't really realize the shortcomings.

The most significant elements of the building are working space, atria, and mechanical spaces, and all are seemingly
well designed.

The most effective area is the atrium which acts as a well of light and beauty. Around these and the central shaft revolve the activity and people. Circulation is adequate.

The central element of this building is the mechanical column which includes exits, entrances, elevators, fountains, toilets, etc. From this central column symmetrically arranged are the atria and the work areas. I believe symmetry in this case is good and functional.

The materials used within the building are beautifully articulated and are of excellent quality.
EVALUATION OF THE REPORTS

The first impressions of the representative from Team A concern one long, thin white column which he likes and the black reflective windows. He describes the buildings in terms of "arch motif," and "attractive facade."

His second report is further developed only with the use of such descriptions as "delicate" and "pleasant." He is concerned that "the interior does not look like the exterior."

The Team B representative bases his first report on similar impressions. "[It] is very pleasing to observe. . . . It seems to incorporate the good qualities of contemporary architecture while being embellished with a classical facade. . . . The arches and pillars are most pleasing." He worries that "an overabundant use of glass gives the building a temporary, weak look."

He judges the building to be "an outstanding example of integrated architectural principles and ideals."

Needless to say, the building is none of these and the question set has partially helped this representative to take a more careful look at the building and make better value judgments.
In his second report he criticizes the location of the building. It is too large for its site. "It is elevated awkwardly in relation to surrounding buildings." The position of all the buildings together is not the result of a plan and this building is no better or worse than any of its neighbors.

He recognizes that the building is a pictorial imitation of a structural system, the vault. But the question set does not convince him of the absurdity of this kind of present-day eclecticism.

He delves into the interior organization of the building. Finding that vertical circulation is in a center core and horizontal circulation moves around two open courts—one on either side of the core. He recognizes the courts and the core as the significant elements of the building—not the exterior decoration. He admires the space in the courts whereas in the first report he did not mention it.

He admires what there is of good detailing and states an appreciation for "beautifully articulated materials."

**SUMMARY**

Both representatives stated in their first reports a liking for the appearance of the building.
The Team A representative reported similar undocumented impressions in his second report.

The Team B representative made some progress by being more critical of the urban environment in which the building exists, for its general lack of order and organization.

He doesn't get beyond the point of accepting eclecticism but is much more comprehensive and critical in a more complete investigation of the internal organization of the building, and has stated a clear-cut judgment that the entire building very accurately reflects the spirit of the office activity it encloses.
The Great Southern Life Insurance Building
Houston, Texas
On the whole, I liked the building very much. Its main beauty lies in the functional use of concrete and aggregate, the use of water, and, above all, the unity of the building. On the ground floor, which was the only floor accessible to me, the overhead beams which connected exactly with vertical columns gave a pleasing feeling of precision and great strength. As a single piece of work seen from a distance, the building looks like a union of horizontal lines running completely around the building and vertical lines supporting the building and rising out of the water. The interesting use of water added greatly to the building. It appeared that the great, massive building rose out of the water on stilts. The use of floating glass walls "hung" from the beams and the surrounding water gave the ground floor lobby the appearance of a cool, restful pavilion. The design of the ground floor "pavilion" was good, with the entrance lobby at one end, the elevators in the middle, and an employees' lobby at the other end.

However, on the debit side, I think that several things could have been done to improve the building. On the two sides of the building where the vertical and horizontal lines cross, there is a honeycomb effect. On sunny days this is supposed
to create "interesting geometric designs which change every hour." However, the day I visited the building, there was no sun because the weather was foggy and bleak. Because of the lack of shadows, the side walls became bleak and sterile looking. The honeycomb looked as though the building had been made from a mold and that someone had forgotten to punch the windows out. Another impression it gave was of a filing cabinet. The worst comparison that struck me was that of the Berlin wall--bleak, gray, and boarded-up windows. Also, the gray monotone on the side walls was too much of a contrast to black and white horizontal stripe effect on the end walls.

In comparison to the side walls, the end walls looked almost like a peppermint stick candy a la Sheraton-Lincoln Hotel. The use of white horizontal beams on the ends of the building and gray horizontal beams on the sides was disturbing and tended to break up the flowing lines and unity of the building. The horizontal lines (columns) on the end and the vertical columns at the bottom of the sides seemed to be opposing each other and pulling the building apart. Also, if the insets on the gray side walls had been deeper, the illusion of boarded-up windows would have been avoided. When this building was designed, it was meant to have the sun shining on it. But, the architects, I think, failed to take into account that the sun in Houston does not shine all the time.
GREAT SOUTHERN LIFE INSURANCE BUILDING

My opinion of this building changes the more I see it. I suppose it "grows" on people. I have become more used to the unusual side walls and now I can really say that I like what has been done. I still do not understand why the side walls are gray and the end walls are black and white. Although I have grown to appreciate the "unpunched mold" side walls, their junction with the end walls still disturbs me. I do like the fact that there are no pillars on the interior of the building. The distinctive appearance of the building, all along with its fountain and setting, make it, in my view, one of the truly outstanding structures in Houston.
GREAT SOUTHERN LIFE INSURANCE BUILDING

The 10-story home office building of Great Southern Life Insurance Company makes a large scale statement in its environment, but does not make a sophisticated one. That is, the architect and owners clearly thought of and responded to many form and function and cost considerations but not enough more to contribute excellently to the view from any distance farther than the property line.

They put the building on a 16-acre site that is flat and exclusively man-embellished by a stunning fountain large enough to set off the structure, and by illustrator rather than inspired paintings. Yet there seems to be an objective, and that is, "we sell a common commodity with great success, and you will see why on close inspection, because we deal not only with the general but with the particular, and in both cases effectively and efficiently."

The building cost $8 Million. From the nearest public street, or from any neighboring building floor, it dominates a 180-degree or even larger panorama. Some of its near neighbors are equal in height; none has half its site.
It is a one-material building despite the fact that once on the grounds one sees a variety of studied complementary tones and effects from it and other resources.

From beyond the site lines, one sees the proportions of a cigaret package or matchbox set on the long side with windowless walls on the slab sides. They have one material spandrels, mullions, and recessed spaces that create the texture. The ends have glass window walls in floor layers that when lighted make an original building out of this box at night. It is distinguishable then, and inspired.

The pleasing effect of the lighted window layers at night is made possible by the frame of night and the expense of unit slab sides.

The building is to be enjoyed more on site. The owner used the blank sides to carry ducts and conduits but gave the grade level entirely to the visitors and employees. Part or all of the monumental fountain and its pools offset the rectilinear and planar building system. View upon view of outside and inside, from with the ground level that is enclosed, prepare and place an individual. Convenience as well as vista remain at every hand. Chapel, auditorium, elevators, and cafeteria each separate but blend within identifiable reach. The cafeteria softens the blow of mass feeding by regulating
and ordering spaces according to dining sequence, and by creation of a personable dining area. It works for a cup of coffee as well as daytime meals. This is so probably because the food is superior compared to price elsewhere, but the visual and acoustic arrangements contribute more important sensory environment than a building owner buys.

Signs in the building direct the visitor but not at the useless distraction expense of the habitual user.

In its function spaces, clear span has meant everything to this insurance machine. Any space looks convertible in half an hour. The building is, nevertheless, a zephyr.
GREAT SOUTHERN LIFE INSURANCE BUILDING

The building shuts its eyes to the sun. It occupies a much larger tract of land than any neighboring buildings and reaches higher as well. It remains a tall building on a large flat tract, a common sight in nature in this area.

The building houses a high concentration of data process equipment and produces standard and repetitive but probably well-formed information. The repetitive forms of the recessed squares tell us this to some extent. (The same firm's bank building in downtown Houston has a much heavier indicator of the security of money, in the skeleton.) So do the horizontal floor lines at the ends.

The exterior bearing wall is apparently an effective way of controlling sun and providing mechanical service channels.

The exterior wall suggests a large volume of clear span interior floor spaces.

It is doubtful that any part of the building is after its time.

It seems a relevant and rational building.
The building meets the criteria you have set out. It has essentially one material, and its structure is honest. The order is in the repetition of forms, as in a waffle.

Nothing about the building seems irrational.

As far as flaws or untruth are concerned, I think the building delays one's visual acceptance because the facade suggests windows but there are none.

I can only assume that this is a well-made building. The finished materials seem uniform in quality, tone, texture, and joining.

The open colonnade at the base surrounds a glass-enclosed core, to hold up the building, provide shade, show views from inside and outside. Windows are plugged so no light gets in or out east and west. Windows north and south indicate a desire for light. This works well day and night, making the architecture a kind of perpetual motion device.

Overall appearance shows spartan restraint but not particularly dignified restraint.

The building symbolizes pure commerce and profit without emotion.

Significantly located spaces include a public lobby and dining space (including auditorium) particularly set up to bring
employees together in a congenial atmosphere with views much different from those of the scheduled work spaces.

The distinctions between mechanical and people spaces are not apparent to me. I believe the service functions are in the vertical columns.

The configuration, tones, and large proportions of the sides and end walls suggested an orderly interior and this promise was fulfilled.

The building details appear to read, i.e., wall, ceiling, window, corner, column.

The building does not seem to contain any incongruous structural or spatial relationships.

In the public spaces, they spent some money to promote the organization and employee relations.

The repetitive nature of the exterior rectangles suggests that the people inside have repetitive, monotonous, and secure occupations.

The building can be appreciated with and without people, with people in the day, and without people at night when the lighted windows and fountain display can be seen.

Some characteristics represent the values of a prosperous and affluent society: fountain and water; landscaping;
parking behind the main facade; ample space around the building.

The building clearly serves people's needs with large office spaces, convenient elevators, toilets, and a ground floor oasis.

The waffle effect suggests repeated similar, rather than different, human activity, which would indicate they are participating in similar functions.

The basic elements are: walls, floors, elevator cores. Glass enclosures for viewing interior and exterior spaces and the fountain.

The scale of vertical and horizontal seems to remain proportionate at any distance. A good and difficult detail to work out everywhere.

When approaching the building there is more mass than volume but obviously the building becomes a container on entry. Columns at the base create the change to a volume.

The size of the waffle spaces seems appropriate. The distances between floors at the end walls also seem conventional.

The exterior wall is the dominating element. It commands the first glance.
Several areas have focal points, such as the fountain, seen from behind glass at grade, for everyone to enjoy.

The building is organized on the basis that everything and everyone moves to the elevator core at the entry.

The rectilinear symmetry makes this building. The freer form of the fountain water is another statement.

Repetition for readability is the essence of the structure.

The ordering idea which governs the plan is movement from or to elevator cores serving public or work spaces.

The clear separation of interior architectural details leaves no question about the goal of the designer.

I believe the building as the proportion of an ordinary box of matches.

No nobility can be ascribed to the spirit of this building. I don't believe that was the intent. Rather, it was not possible for architecture to suggest more than the spirit of the interior activity.
EVALUATION OF THE REPORTS

In his first report the Team A representative says he likes the building. This opinion is developed by observing the interesting use of water and the union of horizontal lines in a "stripe effect."

He says the building is "clever in concept" although bleak looking.

In his second report, the same representative states the building "grows on people." "The distinctive appearance and setting of the building makes it outstanding."

He has actually said little, never tampering with questions which ask why the building is as it is. This judgment is based on literally no analysis.

The representative of Team B is somewhat more comprehensive, even in his first report. In it, he discusses a "large scale" statement, although his definition of scale is ambiguous.

He analyses the objectives of the client who intended to sell "a common commodity" through the image of the building.

He also discusses proportion by comparing the building with a match box.
The structural system is never clearly understood by either representative, both thinking of the east-west solid walls as a skeletal frame with opaque infill panels, whereas in reality, the entire wall is integral and loadbearing.

The representative of Team B is slightly sidetracked in his discussion of food prices and quality in the cafeteria.

He mentions acoustics but only by saying that they are there. He also mentions the clear span and open uncluttered spaces, and concludes by romantically declaring the building a "zephyr" which simply does not describe its character.

This report is more comprehensive than most first reports of Team B, but is still lacking a spirit of inquiry which would begin to develop a searching process to find out why the building is as it is. He likes the building but with reservation.

In his second report, having used the question set, the representative of Team B becomes much more observant of some basic forces which influenced the form of the building.

"The building shuts its eyes to the sun." Here he comes directly to the point.

He studies the wall and says it suggests a large volume of clear span--interior floor spaces--and is an effective way
of providing mechanical service channels.

He finds visual order in the repetition of waffle forms of the exterior bearing wall. This order is developed through the uniform finished quality of the "tone, texture, and joining" of materials.

He mentions the colonade at grade as a consistent ground connection.

He states that light is a vital factor in the design. No natural light comes from east and west. All natural light from north and south influences the building form.

He says that the building clearly serves its users' needs with comfortably large office spaces, convenient circulation and service, and a ground floor oasis.

The basic elements of the building are, he perceives, the bearing walls supported on stilts, floor slabs, and elevator cores.

The dominating elements are the exterior east and west bearing walls. The ordering idea which governs the plan is the movement of people in elevators to and from large work and public spaces.

He denies the building a nobility because none was intended. Only the interior activity of large office space can be read
into the exterior form of the building.

This detailed and comprehensive analysis based on the question set helped the author of this report to formulate a much more defensible opinion as a result of an in-depth inquiry. His general respect for the quality of the architecture is mitigated only by his dislike of what he considers to be the terribly dull, repetitive office activity in the large loft spaces, as it is mirrored in the repetitive forms of the building.

SUMMARY

The representative from Team A talks primarily about exterior, stripe and line effects. In his second report, he states his like for the distinctive appearance of the building along with its fountain setting.

The Team B representative presents a more comprehensive report in his first try. He touches lightly on the influences of site, function, and the intended image of the building.

In his second report he is much more concrete in his observations and more clear in his judgments. He understands the nature of the structure as bearing wall which supports clear spans. The walls block the sun. The light is allowed in on north and south. He has attained a greater appreciation for the system of people-movement.
TOTAL SUMMARY OF EVALUATIONS

The experiment was organized so that the question set would be clearly established as having had an influence on the subjects' opinions, and that it did have validity as a starting point toward making value judgments about buildings.

Group A consisted of people who examined the same building two times. Both times they were asked to express their personal opinions about the effectiveness of the building.

Group B repeated the first examinations of Group A, but used the question set for the second examination after a similar time lapse.

All four Team A representatives presented generally random and vague opinions which never led to any coherent value judgments in either report.

The Team B representatives were also generally random in their first reports. Some were more detailed and descriptive such as the report of Lovett Hall.

In three of four cases the question set clearly helped the Team B representative establish well-documented and basically correct value judgments, while the Team A group in the second report was still random in its opinions.
In the fourth case the Team B representative made some progress.

I believe that the question set has been established as having a distinct value in helping anyone who is interested in architecture to formulate well based opinions about the effectiveness of buildings.

I hope that it may prove useful to anyone who is developing an interest in the appreciation of buildings and who is looking for a method to develop judgments quickly and yet comprehensively.

For those who wish to go beyond the depth of this question set, some further reading is recommended in the following bibliography.
A BRIEF ANNOTATED BIBLIOGRAPHY

Anderson believes in the significance of tradition as long as it does not become a tyrannical influence on our present day architecture: Tradition has, per se, no authority; it is always open to criticism.


Mr. Banham, one of the foremost architectural scholars in Britain today, has stated in this book a refreshingly provocative theory concerning the modern movement in architecture. Machine age architecture, he says, is "machine oriented" only in the sense that it exists in the age of the machine. It romanticized the machine without capitalizing on its potentials. He demonstrates the theory by bringing to light the manifestoes and works of all the major groups in the modern movement. The writing is clear, readable, and informative as a result of original research.


Here, Banham reacts vigorously to the theory set forth by Suzanne Langer that utility is the affliction of architecture. Angrily, he argues that architecture does deal with the problems of use; that symbolism, not utility, is the affliction of architecture.


In this lucid clarification of the basic principles of modern architecture, Mr. Banham is both thorough and informative. He evaluates architecture in terms of what is: Modern, Function, Form, Construction, and Space.


This article is a rebuttal to Hurst's earlier paper on theory. Burchard says that, although we can theorize much, by analyzing existing buildings, what we really need is purpose, not theory. He contends that great architects build first and devise theories later.

Architecture needs theory to catch up with current activity. This paper proposes such a theory: with "Measures of Architecture": Senses; Structure; Function; Unity; Sequences; Style; Composition; Expression. Only within a fresh theoretical climate can architecture have the direction to solve problems clearly.


This article, as a result of new research into the work of Gerrit Rietueld, has shed new light on his professional personality. He is concerned with none of the formal aspects of architecture, but the mental activity of man as he perceives his physical environment. He is involved in the inner world of man and his biological and psychological reactions to nature. The first man to continue this work of Rietueld was L. M. Nagy who stated that space is a biological function of man.


This is a clear, concise picture of LeCorbusier as a professional, and the world which he was to significantly influence. Simple, easy reading. Highly recommended.


Collins states that when the Bauhaus, in an angry moment, chose to eliminate history from the curriculum, it was not to anyone's benefit. In fact, it was a serious error. History contains basic ideas with which to develop a theory of design. "Good buildings cannot be designed in an historical vacuum." If we do not know from where we have come, how can we possibly know where we are going? The question is rhetorical.

This lucid book develops the theory that art is contained in the act of living; art is not esoteric. Criteria for understanding works of Art are not rules but an endeavor to find out what a work of art is as an experience.


For those who are interested in the roots of "functionalist" theory, this book may be informative. It takes under discussion classical functionalism, medieval, renaissance, and rationalist functionalism, as well as the morality of functionalism in the person of Ruskin and Morris.


This book is particularly valuable in that it carefully traces Mies' stages of development from the period as disciple of Schinkle and Behrens to his leading role in the Berlin group in the 20's. Climaxing in the design of the German Pavillion at Barcelona.


Fitch traces the development of American architecture from its colonial beginning to 1945. He then discusses some principles of architecture relevant everywhere: structure, climate, acoustics, planning, building production, and the democratic esthetic.


A must, for Greenough had a clear grasp of the basic principles of design before anyone else in our country. He was very alone in his thinking: "We have yet dared to utter a few words of discontent, a few crude thoughts of what might be, and we feel the better for it. We
promised ourselves nothing more than the satisfaction which Major Downing attributes to every man 'who had his say and then cleared out' and we already have a pleasant consciousness of what he meant by it."


For Gropius, design is a language of communication. There is a scientific grammar of design, which contains common denominators and optical keys. Probably, Gropius, more than anyone, can guide the seaker for meaning in architecture. He can explain in simple terms the basic problems of building. An entire generation of American architects sat at his feet; they are now teaching and practicing some of the most competent architecture of our day.


Much here is reprinted from "Scope..." but the addition of some new writing makes the book worthwhile. Gropius is at his best—lucid, always searching for ideas and expressions which are not personal interpretations, but which can become a common basis for understanding architecture through the use of objective findings. He is concerned with the use of transmissible ideas. Certainly, a necessity for a basic architectural library.


The eight steps are: (1) forget styles, (2) design for modern life, (3) needs, (4) competence, (5) better use of science, (6) education, (7) community activity, (8) add community activity to office activity.


Here Gropius says we must sharpen our criteria that we may be better able to judge our own contributions to architecture and to see how they relate to the manifestations of the society we live in.

Hitchcock's book is the most thorough of all the histories of modern architecture. It is of extreme interest to the student of architecture who is willing to spend his time reading the most detailed analysis of the progress of Western Architecture from 1800 to the present. Scully, among other top historians, relies heavily on Hitchcock for both terminology and categorical analysis. Hitchcock, an architectural bible for college architecture students, is still of some interest to a non-professional public because of his readability, colorful descriptions, and thorough analysis of relevant detail.


Hitchcock here gives a scholarly account of the connection between the modern movements in painting and architecture. Frequently, one was the precursor of the other. As usual, he is lucid, succinct, and colorful.


Hurst sets out earnestly, but in a drab and unoriginal manner, to develop a theory of architecture. First there is climate, then land, and time to consider, then mobility and function. The article is certainly worth reading as a recapitulation of existing theories.


Related to Banham's technocratic theory of modern architecture, Jordy's thesis has merit in that he looks beyond functionalism as a basis to understand the international style. It had, according to both critics, a distinct, "symbolic essence" beyond utilitarian solutions to operational problems.

One of the finest critical documents of modern architectural scholarship, this essay takes the reader through the entire period of conception and execution of the P.S.F.S. Building in Philadelphia. Many original documents are reproduced; including letters, most colorful in content; between architect and client.


This is a program outline for a Bauhaus curriculum in design. Klee guides us through the world of Lines with a clear, graphic analysis.


First published in 1942, this statement of architectural belief is a declaration of war against eclecticism, which the author attacks as the arbitrary application of historical forms to modern use. Lescaze is the architect of one of the first modern buildings in America, The Philadelphia Savings Fund Society Building. The book is significant in the context of a fierce reaction to the use of anachronistic architecture.


Moore gives answers to the question, "Is architecture an art or science?" He says, "both," and gives unique reasons why.


Nagy provides a systematic way to visualize the world. He uses optical keys to characterize materials, volumes, and space. One of his most significant theories is that
space is not an esoteric experience, but a biological function of every man.


Theory is valuable as long as it does not become a justification of stylistic crutches. Theory is seen here as "generalized Principle." These principles are seen all through history.


This thorough analysis of the condition of architecture strives toward developing a sound theory. He builds his theory by first discussing perception and symbolization. He then spends most of the remaining pages in constructing an "integrated theory of architecture," where he strives for a conscious classification of problems . . . in semantics, philosophy, and psychology. This is an in-depth study for those who have the time to become involved.


This is a well documented account of the seeds and roots of the modern movement in design taken from Art Nouveau through the first developments of the twentieth century.


Theory has a purpose: to halt irrational fashions and styles. It must be based upon a clear understanding of historical forms. History is not to be used as a "grab bag" for design but rather a source of knowledge of the "constituent principles" of architecture which can still be applied to new problems.


Basic to every library directed to interests in architecture. A dogmatist and rationalist simultaneously, Ruskin, throughout his criticism, has a negative and positive philosophy. Negative: As recessive: a return to medieval forms. Positive: As moralistic: architecture must never deceive: must always be honest. Architecture is a social art.

Look carefully here at Scully's selective examples of the best in modern architecture. This selection reveals how thoughtful he is, in terms of his understanding architectural roots, precedents, and relationships between buildings. His evaluation of Wright's Willitts house as a prime focus of modern architecture is a new and fresh idea. As a pivot, this house seems to have influenced very much of the international style. In fact, according to Scully, the international style is nothing more than a series of transformations of the Willitts House. Don't mind Scully's game of "Hunt the Precedent." It is enlightening in that we can better understand the roots and directions of modern architecture.


Scully shows a clear understanding of Wright's contribution to architecture in terms of spatial concepts. He shows what Wright himself never admitted: historical precedents, in the persons of Bruce Price, H. H. Richardson, and McKim, Mead, and White. Wright was the first architect to give an external order to shingle style architecture. At first he imitated the forms of Bruce Price, but soon understood Price's basic principles in planning, and, therefore, Wright stands greatly indebted to that unfortunately obscure architect.


Not only is this Philadelphia office building revolutionary in planning concepts, but owes much to basic principles of Beaux-Arts design theory.


Although Sturgis is the critic whose book is based on the dictum: Architecture is the most complicated of the
decorative arts (a synthesis of predominant 19th century architectural belief); yet in the first sentence, he begins; "In trying to . . . judge works of architecture one can never be too patient. It is very easy to hinder one's growth . . . by being too ready to decide . . . . The reader must feel assured that there are no authorities at all in the matter of architectural appreciation." (page 11)


This is the beautifully written story of the spiritual growth of an architectural genius, as told by himself. Some even say that Sullivan has contributed more to American culture with his writing than his buildings. This belief that the contribution of Sullivan to American culture is more easily found through his literary works is an idea put forth in the lectures of Professor G. Heck at the University of Arizona.


The masterful Sullivan sets up a colloquy between a teacher and protégé. The elder student of architecture develops his companion's ability to evaluate architecture. "It's rather fun to do your own thinking, isn't it?" asks the student. "Yes, it is," answers the master, and "rather good for health and happiness. Keep on and some day you will get blood to your brain, if the surge is not too sudden, you may yet become a useful citizen. (page 47)


A clearly written documentation of how to look at buildings. It is a must for every architectural reader's list.

His main point here is that a good critic ought to have some knowledge of history as a way to verify the basic principles of design. History and design merge. That our period lacks historical consciousness is his basic contention.