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Doris Marie Carter

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VISUAL ENVIRONMENTAL EDUCATION:
The Use of Vision as the Primary Sensory Mode of Perception Employed in the Teaching of the Fundamentals of Environmental Education

A dissertation presented
by
Doris Marie Carter

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION

May 1972

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Major Subject Visual Environmental Education
VISUAL ENVIRONMENTAL EDUCATION:

The Use of Vision as the Primary Sensory Mode of Perception Employed in the Teaching of the Fundamentals of Environmental Education

A dissertation presented
by
Doris Marie Carter

Approved as to style and content by:

[Signatures and names]

April 1972
(month) (year)
"When we try to pick out anything by itself
we find it hitched to everything else
in the universe."

---Muir
ACKNOWLEDGMENTS

The author gratefully acknowledges the assistance of Dr. Daniel Jordan, Dr. Roland Wiggins, and Dr. Peter Wagschal for their help and encouragement during the preparation of this visual-verbal dissertation. I especially commend these individuals for their realization and understanding of the fact that vision is a language. They did not for one moment depreciate the use of vision as a language nor try to "squeeze me into a literary matrix." I can not over-express my thanks for the freedom granted to me to be myself--to be visual--to be creative.

My thanks are also expressed to Dr. Masha Rudman who was asked to read this lengthy dissertation during a brief three weeks' span of time.

Appreciation is extended to Dr. Jean Johnson of Columbia University who so patiently read the script, to my friends who helped evaluate the photographs, and to Dimitri Gat of the University of Massachusetts' English Department who offered many helpful suggestions.

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Finally, the author wishes to acknowledge, celebrate and rejoice to the honest fact that vision is a language, that man is capable of attaining a high degree of sensitivity toward his environment through the use of vision, and that vision can become, in every man, a highly articulated sense.
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INTRODUCTION

The quality of the American environment is deteriorating at a rapid pace. One of the most ominous threats to the death of the environment lies in man's failure to provide human and sensory solutions to the uncontrolled spread of technoscience.

In the schools, care for the physical-visual environment has not been handed down as a way of life. As a result, not only has a generation of adults been spawned who show a callousness toward their physical and civic environment, but most important there are few educators prepared to teach environmental constructs to America's youth. Even the President's Council Committee on Natural Beauty states that few schools provide sufficient instruction in understanding the all-over environment, and that there is a considerable lack of well-conceived material on the college level.¹

In setting the stage for this paper, it should be stressed that literature in the form of resource-material in environmental education is sparse. The following reasons may account for this scarcity: 1) since the field is yet in its embryonic stage, American universities are currently producing very few educators within the field of environmental education. According to a study done by Spenser Havlick, most liberal art colleges with a student population of less than 1,200 lack the depth of interdepartmental resources to sustain a program in environmental

education; and the only schools of education in the universities within the country with a center of environmental education are Wisconsin State University and Eastern Montana University. From this report, one can assume that few educators are compiling data within the field.  

2) To the writer's knowledge, the use of vision as the medium in the teaching of environmental education is a new approach—a new concept—a new "way of thinking about the environment" and therefore, the resource-material available in libraries is very meager. The purpose of this paper is to supplement this sparse material. In fact, college curricula cannot be found with a visual multi-discipline approach. The only visually orientated curricula to be found in this field is the visual application to isolated courses. For example, the 1970-71 catalogue for Harvard's Graduate School of Design lists the following programs of visual studies: Architecture, Landscape Architecture, City and Regional Planning and Urban Design. Here is revealed a departmentalized approach to the problems of the physical environment rather than the holistic approach which is endorsed by all exponents of environmental education.  

One can conclude from the foregoing background, with its lack of curricula and resource-materials, that the field of visual environmental education is an unexplored field; and therefore, presenting resource-material using vision as the mode of sensory perception employed in the teaching of concepts about environmental education will be the thrust of this investigation.

---


JUSTIFICATION FOR THE STUDY

The following three concepts may help to explain why vision might be used as a mode of sensory perception in the teaching of the fundamentals of environmental education.

1. In the book by Charles Reich called The Greening of America the author states that in the "Consciousness III" level, that is, "the new generation level," experiences and non-verbal communication are considered as the most precious of all commodities. Visual studio-courses involving the student in concrete experiences would support this concept and help overthrow the hierarchy of societies' linguistic passiveness.¹

2. A study by Edgar Dale states that the process of learning involves: a) defining the problem, b) incubation—the spontaneous recurrence of the idea, c) realizing the idea in concrete form, and d) verification—the elimination of details. One method that is compatible with the implementation of this growth process is the use of visual-aids that reduce meaningless word responses from the students and help students to move directly from the abstract to the concrete.⁵

3. Perhaps the most important reasons evolve from psychological effects. For example: a) Man does not change his body in order to adapt to his environment, but rather he changes or extends his visual-physical environment in order to survive and progress. The quality of control of that visual extension images or reflects the quality of man.⁶

In explaining this view, the fact that modern man is constantly moving


into new environments (under water, on the moon and so forth) seems to
suggest that man has enlarged the range of his biological adaptation
and is escaping from the bondage of Cro-Magnon man of 30,000 years ago.
This is only an appearance. Man can fly only because he has learned
to carry a supply of oxygen. He can climb Mount Everest because he has
learned how to protect himself against cold. That is to say, man dupli-
cates physio-chemical conditions which his body requires, but his body
does not change or does not adapt to radically new conditions. Thus,
man does not change biologically but he CONTROLS (or fails to control)
his environment. This brings us to the question of why man must design
(or control) his environment. Quite obviously, if he cannot adapt his
body to his surroundings, then, he must learn to control his surround-
ings for sheer survival and progression. To control means to design.
To design implies the use of visual expertise applied to the creation
of objects that expands man's extension of himself into his surroundings.

b) Visual influences are a strong factor in determining the ex-
pression of human behavior. Through a feedback process, the "visual
things" of the environment alter and affect human behavior.7

From the topography of land to urban design, countless visual
influences play a role in determining the expression of human behavior.
Through a feedback process, the "visual things" of the environment con-
tinuously alter the body, the mind and behavioral patterns. Contrary to
popular belief, genes alone do not determine the traits of a person.
For example, naturally a child who is constantly exposed to P. S. #205
in New York City with its rats and dingy halls is going to throw a brick
at the window. His environment is "egging him on!"

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c) The visual environment influences latent and untapped potentials that can become actualized only when the environment is physically prepared to offer a variety of experiences to the human organism. For example, an urban born baseball devotee will never become a pro-champ without an open lot of land to practice on. As another example, a child reared in Florence, Italy, exposed to the sights of sculpting and palaces will always be exhilarated by such sights. They become an ingrained part of him. Responses to the conditions of the present are always conditioned by the "visual things" of the past.

The foregoing justification might be summarized by stating that the new field of environmental education through visual means should be investigated because it focuses on youth's expressed needs for non-verbal communication, makes the process of learning more direct and influences behavioral patterns.

PURPOSE OF THE STUDY

This paper investigates the field of visual environmental education by searching into its purpose, content and methodology. The paper is compiled in the form of resource-material for use by the educator in higher education who is interested in exploring environmental education through the use of vision as the primary sensory mode of perception to be used in the learning experience.

Ten diversified environmental areas of educational concern are investigated. The ten areas are:

1. The Intimate City
2. Organic/Inorganic Relationships
3. A Case Study in Environmental Design

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The data of each of the ten environmental areas are presented using the following methodology: 1) verbal synopsis, 2) verbal content, 3) visual content, 4) visual projects visualized, 5) visual projects verbalized.

AN OVERVIEW: HOW TO USE THIS MANUAL

This section explains: a) the design of the investigation, b) the methodology to be used in the investigation, and c) suggested techniques for using the resource-material.

a) The Design of the Investigation:

Chapters One through Ten are the real contribution to this new field of visual environmental education. A large array of ideas is presented stressing the use of vision as the direct medium of communication. This presentation of ideas is intended to motivate the educator and present guidelines and constructs for his personal adaptation in accordance with his own particular situation. It should be stressed that this material is intended to guide, to suggest, not to direct. It is not designed to be exploited as a recipe book. It is not a set curriculum, but rather a resource manual.

A variety of visual environmental areas is investigated on a verbal-visual basis. Each area presents verbal concepts about the area, presents visual motivational resource-material, suggests student experiences (projects) related to the area, and shows examples of student's
Ten environmental areas are investigated in the following sequence:

Chapter One—The Intimate City:

This section investigates the design elements that convey the image of a city, such as the use of microscale to create intimacy. It also explores the history of America's anti-city sentiments.

Chapter Two—Organic/Inorganic Relationships:

This section investigates the relationships that exist between man-made objects and nature's object through a survey of crystalline systems, the module, units of structure and external form similarities.

Chapter Three—Environmental Evaluation:

This section presents a case study in environmental analysis for the purpose of giving the educator a structure for similar studies.

Chapter Four—Proxemics:

This section presents a case study in visual space usage so as to give the educator a paradigm for similar studies. Flow maps of traffic and conversation, space arrangements, space expulsion and space violation, spacial distances, territories, sensual-space and personal space are surveyed.

Chapter Five—The Human Habitat as a Spacial Form:

This section suggests ways of searching into man's spacial living arrangements throughout the chronological ages of history. Due to the expansiveness of the area, the survey is limited to one "sample" format—"Greece." The survey explores both civic and domestic visual forms.

Chapter Six—Small Urban Areas:

This section suggests some approaches to the redesigning of "vest
pocket parks."

Chapter Seven—The Quality of the Man-Made Object:

This section investigates such areas as the causes of ugliness in the modern object, how attitudes change the form of objects and planned obsolescence.

Chapter Eight--The Visual Environment Expressed Through the Fine Arts:

This section suggests topics for exploration through the plastic arts and is non-functional in approach.

Chapter Nine--Solving City Problems:

This section consists of a variety of visual city problems such as traffic signals, slum clearance and the creation of self-containing environments.

Chapter Ten--The Elementary Curriculum:

This section suggests ways in which higher education graduate students can involve themselves in the environmental education curriculum of the public schools.

Chapter Eleven--Summary and Conclusions:

This section summarizes the body of the paper's chapters one through ten and also offers suggestions for future environmental research. The paper ends with a bibliography for the purpose of "suggested readings."

b) Methodology:

Each of the first ten chapters presents the verbal and visual data using the following methods:

1. Verbal Synopsis--A brief statement about the purpose of the chapter.
2. Verbal Content--Verbal resource material; concepts and thoughts about the nature of the given area (chapter).
3. Visual Content--Visual resource material; visual concepts and thoughts about the nature of the given area (chapter).
4. Visual Projects Verbalized--Suggested student projects related to the content to be solved visually by the student in the studio-course situation.

5. Visual Projects Visualized--Examples of visual results of the projects; that is, of number four above. Photographs and Xerox of student work.

c) Suggested Techniques for Using the Resource-Material:

The successful use of this given resource-material will depend primarily upon the ingenuity of the educator involved who is encouraged to let his own ideas grow organically as he becomes familiar with the paper's contents. The following techniques are suggested; they are meant to supplement the educator's own ideas. 1) Use the visual material in an opaque projector. 2) Encourage students to search for visual material so as to exemplify the verbal content material. 3) Combine the "suggested student projects" with each other so as to interrelate them. 4) Create your own student projects based on the given material. 5) Photograph your own student work and use this for future motivational material. 6) Cross-cut and combine the various chapters with each other. For example, try combining the thoughts of "The Intimate City" with "Organic/Inorganic Relationships." 7) Substitute the visual medium with a different sensual medium such as touch, smell, or auditory senses. In brief, the educator is encouraged to experiment with the given data; this point cannot be overstressed!

DEFINITION OF TERMS USED

Environmental education--Many different terms are used to describe the field of environmental education. Some of these terms are: "environmental design," "the new conservation," "contemporary American
esthetics" and environmental humanism." The term "environmental education" is used throughout this paper, and it refers to the process of recognizing and clarifying values and attitudes necessary to understand the interrelatedness among man, his culture and his bio-physical development. Moreover, it entails practice in decision-making about issues concerning the quality of life.\(^9\) According to Raymond Dasmann the goal of environmental education should be to help citizens to realize the need for a rational use of the environment so as to achieve the highest quality of living for mankind. This "rational use" is based on continuing future needs of humanity; and this involves the use of the natural laws that govern man's occupancy of this planet.\(^10\)

Environmental education represents a significant new scale in the interpretation of man-land relationships. The difference as explained by Clay Schoenfeld may be defined as follows:\(^11\)

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<table>
<thead>
<tr>
<th>YESTERDAY</th>
<th>TODAY</th>
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<tbody>
<tr>
<td>compartmentalized</td>
<td>multi-discipline</td>
</tr>
<tr>
<td>local boundaries</td>
<td>global boundaries</td>
</tr>
<tr>
<td>parochial interests</td>
<td>broader awareness</td>
</tr>
<tr>
<td>rural</td>
<td>urban</td>
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<tr>
<td>appended rationales</td>
<td>indigenous concern</td>
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<tr>
<td>patriotism</td>
<td>quality of life</td>
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<tr>
<td>national strength</td>
<td>as an end in itself</td>
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<tr>
<td>war gains, etc.</td>
<td></td>
</tr>
<tr>
<td>resource centered</td>
<td>man centered</td>
</tr>
<tr>
<td>flora and fauna</td>
<td>human joy</td>
</tr>
<tr>
<td>terrestrial</td>
<td>universal</td>
</tr>
<tr>
<td>land only</td>
<td>land, water, air, etc.</td>
</tr>
<tr>
<td>biophysical science studies</td>
<td>social science studies</td>
</tr>
<tr>
<td>quantity and efficiency</td>
<td>quality</td>
</tr>
<tr>
<td>technical impetus</td>
<td>public involvement</td>
</tr>
<tr>
<td>science endowments</td>
<td>pressure-group for political action</td>
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<tr>
<td>for political action</td>
<td></td>
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<tr>
<td>absolute solutions</td>
<td>multi-solutions</td>
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<tr>
<td>elementary education</td>
<td>adult education</td>
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<tr>
<td>print media</td>
<td>all media</td>
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<tr>
<td>business as usual</td>
<td>sense of urgency</td>
</tr>
</tbody>
</table>
In summary, environmental education may be defined as the holistic and multi-discipline educational approach to the problems that have evolved from man's abuse of nature-man relationships. The end product is to nurture a quality of life superior to our present deteriorating condition, and to prevent the terragenocide of this planet Earth.

Quality of life--This term is used to refer to an environment that is healthy, esthetic and diversified.\textsuperscript{12}

Axiology--This term is used to refer to the study of human values. Axiology is valid curriculum material; and it involves the cultural change that is so necessary to counterbalance our technoscience society. To support this view Don Fabun states with regret that change in our society is usually thought about in terms of measurement. That which is measurable exists; that which cannot be measured does not exist. However, real cultural change has to do with the differences in our experiences in the configuration of things. This is cultural change and it is created by the divergency in the pattern of things.\textsuperscript{13}

Resource-material--This term is used to refer to the material to be used by the educator for the purpose of motivating and informing students. The material is not a set-curriculum as it is presented in this paper; but rather, is to be used creatively and with flexibility by the educator.

Visual environmental education--This term is used to refer to the use of vision as the primary sensory mode of perception employed in the teaching of the fundamentals of environmental education.


\textsuperscript{13}Don Fabun, The Dynamics of Change (New Jersey: Prentice Hall, 1968), pp. 7-8.
SUMMARY

This paper explores the use of vision as the medium to be used in the teaching of the fundamentals of environmental education. Resource-material for use by the educator in higher education is compiled using ten diversified environmental areas. The data of the ten areas are presented in both verbal and visual forms. These data are intended to be used by the educator in a flexible and creative manner. These resource materials are presented in a multi-discipline manner for the purpose of clarifying values necessary to understand the interrelatedness among man, nature, his culture, and his bio-physical development in order to enhance the quality of man's life.
CHAPTER I

THE INTIMATE CITY

1. VERBAL SYNOPSIS

This chapter explores the history of America's anti-city sentiments. It defines the phrases "intimate" and "anti-intimate" cities and explains the ways in which imageability, amenity and diversity are the major components of intimacy. It then proceeds to explain and show ways of designing for intimacy through the use of the design elements, physical elements and scale.

2. VERBAL CONTENT

The History of America's Anti-City Sentiments:

The first part of this chapter attempts to explain why American cities seem to be anti-intimate and why we seem to lack the amenities that other countries possess, notably Europe.

The art of city-planning draws on two conflicting traditions. One is the pro-city Renaissance tradition, which in modern times inspired the Paris of Baron Haussmann. The other is the anti-city tradition, born out of John Ruskin's and William Morris' revolt against industrialization, which inspired the garden city concept of Ebenezer Howard and the vertical city of Le Corbusier. This second tradition has been followed by American city-planners as it corresponded all too well with America's traditional disdain for urban life. Many of our most influential writers and philosophers hated cities; namely: Emerson, Thoreau, Hawthorne, Poe,
Melville, Henry James and John Dewey.¹

American architects did not worry much about the city as an entity. Louis Sullivan and Frank Lloyd Wright both hated cities. Wright's Broadacre plan only advanced the anti-city scheme. This plan diffused the city-function throughout the land and provided every family with an acre of land.²

In Europe, the aristocracy and upper middle-class had their palaces in the city and their way of life was urban. In England, through our Anglo-Saxon heritage, the epitome of elegance and wealth was not the opera but the fox-hunt; not the cafe, but the garden-party. The townhouse was far less of a status symbol than the country estate, and the object of the poor was to live outside of the city. To the British, the good life was the country life. In the United States, this English attitude reinforced more typically American traits. Jefferson held the city in disdain. Moreover, this country was settled in search of land and its promise of unrestrained individualism. Unlike Europe, our city did not grow out of a tradition of village community life. Our cities developed instead mostly along monotonous grid-patterns where harbors, depots and commercial centers were needed. They were often simple work-camps; and even today, they express this tone. Our cities are still built this way with little thought or funds delegated toward esthetics, amenities or humanness.³

When we build parks and boulevards, we imitate Europe, but they


³Goodman and Eckardt, Dead Spaces, p. 39.
are not expressive of American needs. We imitated the form of the
market-place, but rarely for a meaningful function. Our farmers, un-
like peasants in other lands, do not need open market places to offer
their produces to the town-folk. Our authorities, unlike the secular
princes of abroad, rarely seek to impress us with pomp and splendor
of parade and procession. Hence, we have no need for settings for feast
and fiesta. Our spirit was too puritanical to create wide sidewalks for
the mere pleasure of leisurely and spontaneous human-contact. Only in
our earliest history when the business of unloading ships approximated
that of the market did we ever have anything like the color, gaiety,
hustle and bustle of a Rialto. The space in front of Faneuil Hall in
Boston provided such a public forum, so too did New Orlean's Jackson
Square and the harbor of Annapolis. As industry expanded in these areas
and buildings soared to the sky, the value-dollar of land left no room
for the amenities of urban living. The heart of the city began to die.
Until very recently, the idea of a beautiful city seemed almost ridiculous
to most Americans.¹

The Intimate and the Anti-Intimate City Defined:

In reviewing current literature about cities, it is interesting
to note that much has been written about the deterioration of the core-
city. Volumes of current books condemn American cities; they rave about
the types of deterioration, of pollutants, slum problems and traffic prob-
lems. The material is endless! But rare is the book that offers a con-
crete solution to the problems of the deteriorating city! Voices of doom
abound from the heavens and offer no solutions.²

¹Goodman and Eckardt, Dead Spaces, pp. 38-40.
²Examples of literature offering no solutions: Peter Blake, God's
It is the purpose of this chapter to present a more optimistic approach. To present a city full of amenities—pleasant, agreeable, comfortable, human and convenient—the American city of the future—perhaps of the year 2,000. With foresight, a national budget and a national will, this vision can come true.

The phrase "intimate city," if taken in its real meaning, rather than in preconceived stereotypes, pin-points the needs of American cities. Webster defines "intimate" as: private or personal, closely acquainted or associated, very familiar, resulting from careful study or investigation, well-defined."6

The antonym well describes our present cities: alienated, foreign, unconcerned, depersonalized. To describe the antonym of an intimate city, one might use one word: "Watts." Now, Watts is a very functional city. It has super speedways, enough schools, good plumbing and garbage pick-up. So what is wrong with the "Wattnses" of America? They have no intimacy, no diversity, no amenities, no sense of place—but exist as depersonalized no-places.

The next section of this chapter explores the ways in which imageability, amenity and diversity function as the major components of intimacy, and ways in which they can be used to build a quality place to live.

Major Components of Intimacy:

a) Imageability:

In the United States, a beautiful and delightful city environment

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is an oddity, some would say an impossibility. Not one American city larger than a village is of consistently fine quality. It is hardly surprising, then, that most Americans have little idea of what it can mean to live in an amenable environment. They understand well the ugliness of the worlds they live in; but they are hardly aware of the real potentials of an amenable city. Perhaps this is the reason why few Americans have an image of a vision for tomorrow's city. They have no past backlogging of visual images and experiences to rely on, to build on and to create from. Nobody can create from a sheer vacuum. Perhaps only those who have briefly glimpsed at the cities of Europe can have some sense of what a real city might be in terms of daily delight, or as a continuous anchor for their lives, or as an extension of a meaningful world through the intensity of human-experiences.

A city that satisfies these goals will have a strong "imageability." By this term, we mean that the city will evoke a strong image in a given observer. It is crystallized. It is of a shape, color and arrangement that facilitates the making of vividly identified mental images. It has legibility. It would invite the eye and the ear to greater attention and participation. It would have a sensuous grasp. The concept of imageability does not necessarily connote something fixed, but rather, plastic, open-ended and capable of further development. If the environment is visibly organized and sharply defined, then the citizen can mold it into shape with his own meanings and connections. Then it will be a true PLACE, unique with a personality of its own.  

The downtowns of most large American cities are bleak, monotonous, impersonal and inconvenient, expressing an over-all meanness of environment in the midst of great wealth and almost unlimited resources of

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building materials and architectural talent. After business hours, our cities are as lifeless as unplugged computers. They express a vague and fuzzy image and remain a national disgrace—a nation to the integrity and worth of the individual spirit. Some people who shape the central business district are just beginning to reach out beyond today's glassy-eyed aura of efficiency and beyond the ease of real-estate profits in search for a degree of genuine city imageability. A few scattered monuments to this new movement have already been completed in such places as Montreal, Baltimore and Minneapolis. Others are under construction. 8

These new developments do not lack humanness. They have so much of this quality that they sometimes seem to be aping the street life of old European cities. The employer on his way to the office in the morning travels a more amiable route. He crosses a cobbled-stone square as in Vienna, or a brick courtyard as in Venice. Splashing fountains culminate careful vistas. Thickets of little trees grow out of the rubble pavement. Galleries modeled on Milan's compete with outdoor sitting areas. Instead of conventional street lights, there are wands crowned with electrical jewels. As in Bologna, arcades shield pedestrians from the rain. Sculpture adds scale. There are outdoor cafes, small specialty shops, an overall concentration on creating a pedestrian street life. The auto is banished from the central premises.

As pleasant as these areas are, must we mimic Europe? What American activities and events can we design for? What natural native materials can be utilized in our designs? What building materials are strictly

American? What American topography and climate conditions should be taken into consideration? Ice cream sodas and the movies belong to America; brick courtyards and "saint-statues" do not. Handcarved weather-vanes belong to America; French baroque-boutiques do not belong to America. Our answers lie at hand, let us not search too far away—and get lost!

b) Amenities:

Amenities refers to "esthetic-delights," to "pleasantness of sensory input." What makes a city amenable? What makes it human—what gives it personality and style? What makes the delights of Florence different from the delights of Denmark? Following is a list of phrases which help to capture the amenities of life in a city:

- pedestrian shopping
- outside sculpture
- sidewalk café
- comfortable benches
- lush floral displays
- colorful parrots
- small and varied shops
- canopies in the rain
- sun umbrellas
- hanging plants
- broad sidewalks
- available mass transit
- specialty shop
- mosaics
- car-free shopping
- street furniture
- parking lots shielded from view
- sufficient litter disposal area
- a place to go watch people
- a place to go meet people
- a place to go play games
- a place to learn handicrafts
- a place to buy little "impulse" things
- a place to sit and dream (w/o being picked up for loitering)
- roasted chestnuts
- roof-garden
- kiosk
- arcade
- hand-made objects
- town bulletin board
information booths
convenient "johns"
public maps
small zoos
bookstalls
greenhouse pavilion
a place to sun
greenery
outdoor shelter area—weather protection
pools of water
cascades
islands of trees
outdoor black-boards
shops right on the street—open
gravel paths
craftmen's studios with them working right there
delicatessen
candy and ice-cream parlors
footbridges
water-plant green house
coffee shop
ice-skating rink
distant silhouettes
changing views when you walk
shaded arbors
protection against the wind
play grounds
fiesta and festival
outdoor art show
trellises
aquariums or fish ponds
drinking fountains
wishing wells
stone-tablet walks
meandering paths
bike paths
band stands
garden summer houses
stoneware lanterns
gateways and entranceways that mean you enter something
birds and birdhouses
balconies
verandah
swinging swings and hammocks and rocking chairs
stationary binoculars
a spot-lighted building or tree
stained glass
colonnades
archways made by trees
window shopping
a tall steeple
alleys
sun porches
small mounds or hillocks
outdoor theater
story teller's booth
a soap-box for speakers
outdoor chess board
agora, forum, plaza, patio
hustle and bustle, "movement"
accessibility
vistas, panoramas
slow moving small electric cars
patterned floorscape
low, soft light fixtures at night
conserved natural terrain
terraces
porticos
shadows to look at
details on buildings
arches, gates and windows to look through
clocks and thermometers on buildings
shade from the hot sun
go up and down different levels
find a surprise somewhere
weathervanes on roofs
rosegardens
reflections in water
being surrounded by water
the gurgle sound from small brooks
bells sounding the time from steeples
good odors to smell like the bakery or coffee grinds
blackboards for public use
poster columns for public events

Following is a listing of places often needing to be converted into
"amenity-areas."

Public housing project areas
Roof-tops of housing projects
A corner lot-vacant lots
A street can be blocked-off for pedestrian use
A street and lot combined for pedestrian use
A public square
A social-bridge over a freeway
A civic-center area
Waterfront site
Small park area
Slum housing torn down--use this space as outdoor living area

Cities located on water-fronts should use the water as an extra
asset rather than as a backyard dump-disposal area. The following
phrases might describe a pleasant coastal city:

mariners, parks
traffic arteries that avoid the water's edge
exhibits around the ocean--about the ocean
lobster pools
dock-side cafe, seafood
docking and loading observation decks
art galleries
tour boat rides, submarine rides
underwater tour guide
a marine museum
the permanent anchorage of specimen ships
balconies hanging over the water
pier walks with pavilions on the end
underwater lighting close to shore
deck tennis
fish and swim areas
outdoor fish markets
folklore and folksongs about the sea
rope tows, scallop festivals
fish stories
yacht lessons
boat bars
flags displayed about boat symbols
historic preservation

(c) Diversity:

To understand cities we have to deal with combinations or mixtures of uses, not separate uses, as the essential phenomena. The most important question about planning cities is this: "How can cities generate enough mixture among uses--enough diversity to sustain themselves--diversity, convenience and vitality?" The most important point to remember is that city diversity itself permits and stimulates more diversity. A large manufacturer does not need a city but a small manufacturer MUST have a city, but in turn, it adds to the diversity of that city. To generate diversity in a city's streets, four conditions are indispensable according to Jane Jacobs, author of The Death and Life of Great American Cities. 1) The district must insure the presence of people who use the streets during all hours of the day, not just rush hour. 2) Most blocks must be short--not super-blocks. 3) The district must mingle buildings that vary in age and architecture. 4) There must be a sufficiently
dense concentration of people, that is: density of residence.\footnote{9}

Following is an explanation of these four conditions:

Condition One:

On successful city streets, people must appear at different times. This is time considered on a small scale, hour by hour through the day. The presence of people on the street is assured by primary and secondary uses of the street. Primary uses are those which in themselves bring people to a specific place because they are anchorages. Examples are offices, factories and dwellings. The secondary uses are the enterprises that grow in response to the presence of primary uses; that is, to serve the people of the primary functions. Examples would be specialty shops, cafes, and so forth. In downtown areas, lack of sufficient primary mixtures is usually the most serious basic handicap leading to lack of diversity.

Condition Two:

Most blocks must be short, opportunities to turn corners must be frequent. In the use of long blocks, even people who are in the same neighborhood for primary reasons are kept too much apart to permit them to form pools of city cross-use. There is no fluidity of use. The myth that short blocks are "wasteful" is one of the verities of orthodox planning and comes from the Radiant City theorists.

Condition Three:

Among the most enjoyable sights to be found in the city are the

\footnote{9Jane Jacobs, The Death and Life of Great American Cities (New York: Alfred A. Knopf, Inc., 1961), p. 150. The four conditions following this footnote are abstracted from pp. 150-220.}
ingenious adaptations of old quarters to new uses. The town-house parlor that becomes a craft showroom, the stable that becomes a house. Cities need a mingling of old buildings to cultivate and incubate primary diversity mixtures. Neighborhoods built up all at once change little physically over the years. The little change that does occur is often gradual dilapidation.

Condition Four:

High density dwellings have a bad name in orthodox planning. They are supposed to lead to slums and crime; and yet, studies have shown that there is no correlation between the two. For high densities of dwellings and overcrowding of dwellings are often confused. "High density" means large numbers of dwellings per acre of land. "Overcrowding" means too many people in a dwelling for the number of rooms it contains. The census definition of overcrowding is 1.5 persons per room or more. It has nothing to do with the number of dwellings on the land. Almost nobody over crowds by choice; but people often do live in high-density neighborhoods by choice.

3. VISUAL CONTENT

Designing for Intimacy:

If the goal of those who build cities is to produce imageability, amenities and diversity as the components of intimacy, then, it follows that there might be certain tools that the designer might use to realize his goal. Three basic tools used to convey intimacy might be identified as: a) the design elements, b) the physical elements, and c) the scale. Following is an explanation of these three tools:

a) The Design Elements:

The design elements are used to create the spatial relations that
one feels as one moves around in the city. Some examples would include feelings of being enclosed by buildings, or semi-enclosed, moving freely through space, feeling a sense of place or feeling physically above the city. Following are some visual examples of the use of the design elements. A verbal explanation accompanies each visual format. These figures, credited to the writer, consist of sketches abstracted from photographs.
Barcelona, Spain

Fig. 1

VISUAL SCOPE: Qualities which increase the range and penetration of vision, either actually or symbolically. These include vistas and panoramas, glass windows, high views and so forth.

This sketch is a panorama, high-view. This view encompasses the totality of the city. The inhabitant can say: "This is my city"—resulting in a feeling of belonging.

NEGATIVE SPACE

The space that is not used (negative space) is just as important as the space that is used. If well designed, it will have a life of its own. Negative space exists between the buildings within a group of buildings; it also exists between groups of buildings. In the latter case, it is often referred to as open-space.

This sketch is a good example of effective use of open space.
Rothenburg, Germany
Fig. 3

THE FRAMED VIEW:

Great pleasure is derived from looking through things whether it is a "peep-hole" in a fence, a gate, a tunnel, a small window or an arch. It intensifies the feeling of here and there and of entering. "I am here before the gate." "There is beyond the gate." "I am entering the city."

An arch acts as the key-hole in this sketch.
Schwaebisch Hall, Germany
Fig. 4

DEFLECTION:
Deflection is a closed view that is not entirely closed but suggests something beyond the closure. Usually the closure building is not on right angle. The far end is not completely sealed off from view and this creates anticipation. There is an end in view but the end is not final.

In this view the observer can anticipate walking down the stairs to the end and then turning the corner. The scene sets up curiosity.
A SENSE OF PLACE:

A. I am outside
B. I am entering
C. I am in the middle
D. I am leaving

Place is concerned with our reaction to the position of our bodies in its environment. It means, for instance, that when you go into a room you utter to yourself the unspoken words "I am outside it," "I am entering it," "I am in the middle of it."
POSSESSION OF SPACE:

No movement of the pedestrian traffic. Static use of space. It is encouraged by benches and steps to sit on, soft grass to lie on, piers to sun on.

In this scene it seems as though the bench-warmers plan to stay awhile.
Alicante, Spain
Fig. 7

FUNCTIONAL USE OF SPACE:

Mobile use of space used for business and social purposes. Out of doors streets and plazas. The people use the space and then move on to other activities.

In this scene, people travel in to shop and talk to old friends and then move on.
CONTAINING:

Very little is needed to create the charm of containing. Thatched roofing, bamboo screening, a square canvas stretched overhead all can be used to create a defined space outdoors. Outdoor cafes and stores are examples of "containing" so is the outdoor music shell.

Containing is used often in Europe but seldom in the U. S. A. partly due to our out-dated zoning laws that prohibit such use of the sidewalk or street.
NARROWS:

The crowding together of buildings forms a pressure, an unavoidable nearness of detail. It is a good contrast to the square. Narrows can be used to create an enclosure intimate to the pedestrian. It articulates the city.

In this view, notice how the architecture curves with the curve of the street. It adapted itself to the narrows and not vice-versa.
RELATIONSHIPS:

Bring buildings together and collectively they can give visual pleasure which none give separately. One building standing alone in the countryside is experienced as a work of architecture, but bring half a dozen buildings together and an art other than architecture is made possible; mass and volume become dynamic much as a piece of sculpture.

In this sketch, the variety of levels within the group adds to our pleasure. Like sculpture, there is no "front" and there is no "backside" to the group of buildings.
BARRIERS:

Barriers exist for pedestrian safety and to control the flow of traffic. The following four methods permit visual access but deny physical access: railing, water, planting and change of level.

It should be stressed that barriers do not cut off the visual scene.

A. Split fence with view of water beyond
B. Floral barrier with view of hills beyond
C. Wall barrier keeps people out of the water but permits view of houses and water both
b) The Physical Elements:

According to Kevin Lynch's "Image of the City," the contents of the city's images as physical forms consist of five physical elements: 1) paths, 2) edges, 3) districts, 4) nodes, 5) landmarks. Following is a clarification of the meaning of the word "images" and of the five physical elements. A verbal explanation accompanies each visual format.11

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IMAGES:

Rather than a single image for the entire city, people seem to hold in their minds several images that overlap. They also hold a hierarchy of images starting with street to neighborhood, to district, to city, to region. Images may differ not only by the scale of area but by time of day and season.

A person's image of a city is not a precise model of reality reduced in scale; rather, it has been distorted, fused, added to, subtracted from by the viewer. People tested for city-imageability remember the following with clarity:

1. An emotional delight arising from a panoramic view.
2. The visual dominance of paths.
3. Landscape features--such as topography, vegetation and terrain.

All of the above three are experienced as the passage of time as they pass through seasons, change of climate and change in the time of the day.
Amsterdam, Holland
Fig. 13

PATHS:

Paths are the channels along which the observer moves. They may be streets, transit lines, canals or even railroads. People build up an image of the city while moving through it. Paths may have a directional quality, a clear beginning and end that helps to tie the city together in the observer's eye.

A path may possess the quality of scale or measurement. Landmarks along the way help to create a sense of scale and break up the monotony of a long path. A path used by vehicles should have strong kinesthetic quality—the sense of turning, rising, falling. One should be able to feel the grade of the road, the curve, the climb, the rise and the fall.

In this sketch, the canal serves as a very direct path.
EDGES:

Edges are the linear elements not used as paths. They are the boundaries between two regions such as shores, railroads, walls and edges of developments. Such edges may be barriers which close one region off from the next, or they may be seams, lines along which two regions are related and joined together. These edge elements, although probably not as dominant as paths, are for many people important organizing features holding together areas in the mind's eye.

It is curious to see how frequently the immediate neighborhoods surrounding some edges are blight-prone or "stagnant," a condition that precedes decay. Such border vacuums are often created by university campuses, housing projects, industrial parks, railroad tracks, waterfronts, expressways and large parks.

In this sketch of Nazare, Portugal, we can observe several edges or borders. The sea hits the sand, the sand hits the street, the street hits the town, the town hits the hills.
DISTRICTS:

Districts are the medium to large sections of the city which the observer mentally enters "inside of" and are recognized as having common identifying character.

Districts have various kinds of boundaries. Some are hard, definite, precise. Others may be soft or uncertain. Still others may have no boundaries at all. Strong edges, by hindering transitions from one district to another, may add to the impression of disorganization. Although they are close together in physical reality, most people seem to feel only a vague link between districts. This psychological distance and remoteness may be much greater to surmount than the mere physical separation.

Sketched here is a boating district with a clear cut edge.
NODES:

Nodes are the anchor-points in our cities. They are the strategic spots in a city into which an observer can enter, and which are the intensive focus to and from which he is travelling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one direction to another. Junctions are usually the convergence of paths, events on the journey. The function, or place of a break in transportation is important because decisions must be made at junctions, people heighten their attention at such places and perceive with more than normal clarity.

Visualized here is an example of an interior and exterior node combined. The street junction is the exterior node and the interior of the railroad station is the internal node.
LANDMARKS:

Landmarks are points of reference. Their use involves singling out one element from a host of possibilities. Some landmarks are "distant" seen from afar from many angles--such as a church steeple. Other landmarks are "local" seen from restricted localities such as signs, storefronts, trees, door knobs and other detail. Local landmarks are more frequently used than distant landmarks. It is important to remember that a landmark is not necessarily a large object, it may be a door knob as well as a dome. It is the location that is crucial.

Fig. 17
c) Scale:

The third tool used by the designer to obtain intimacy within the metro-structure is "scale." As population sizes increase, we live in a world in which everything is constructed on a vastly larger scale than ever before. Everything is built too big so that one does not experience a direct relationship between the small size of his own body and the objects or buildings involved. To make things worse, the sensitivity of people to space is not yet a highly developed sense. Moreover, mechanized man has amplified his senses by his inventions so that fascination for the loud noises and fast movement have eradicated the dimensions of humankind, the intimacy of the small. Following are some visual examples of the use of the components of scale: microscale, macroscale, humanscale and the floorscape. 12

THE MACROSCALE:

In searching for the roots of our city confusion, one might focus on the relationship between the microscale, macroscale and humanscale. To help define the differences between the three scales, let us pretend we are on a trip to New York City. We have never been there before and we search for a map. Viewing the map forms as an abstraction on a page, two million times smaller than reality, we find it good-looking. Its beauty really blossoms out at closer range when approaching the region in an airplane. At night, we are exhilarated by the abstract patterns of lights, focusing on the city. This far-away scale is referred to as the "macroscale."

Yet, let daylight come, remove the distance, and a sea of ugliness offends the senses. Walking down the streets we are hit by every possible assault on our senses. We cannot tolerate this abuse any longer so we take the elevator to our hotel room. Here again on the intimate and small "microscale" everything is in order and we rest in peace. Pursuing this line of inquiry, we find that the beautiful objects of our environment tend to be grouped at the extremes of the scale, the micro and the macroscale, while the intermediate range, the so-called humanscale, contains most of the ugliness. These three forms of scale are visualized in the above sketches.
HUMANScale:

Stuttgart, Germany
Fig. 19

Street furniture is one form of the humanscale. It is any small outdoor object such as benches, chairs, chess-boards, the kiosk, post boxes, street lights, telephone poles and fire alarm boxes. Some additional ways of achieving humanscale effect might be through the use of textures, detail of architecture and the use of floorscapes.
FLOORSCAPE:

The designing of the floorscape is a way of achieving humanscale effect. When the floor is broken down into small patterns it creates a human relationship between the foot-stride and the floor. By contrast a sea of unbroken blacktop creates an endless feeling of depersonalized space. The body cannot relate to it.

The floorscape is one of the most powerful agents for unifying and joining the city to the floor. If the floor is flat endless blacktop then the buildings will remain separate from the floor.

Three interesting floorscapes are posed here:
A. Floral clock in Edinburgh, B. Mosaic sidewalk in Lisbon, and C. Wood slabs, wood chips, used in Murnau on the Boden See.
4. VISUAL PROJECTS VERBALIZED

Following are some suggested student projects related to the content to be solved visually by the student in a studio-course situation. The projects should help to develop awareness of ways of designing for intimacy through the use of the design elements, physical elements and scale. The ideas for the projects are credited to the writer. The necessity for creative and flexible adaptation on the part of the educator is again stressed at this point.

a) Design Elements:

1. Take photos of the ugliest small areas that you can find. Take photos of it from various angles. Back in the classroom redesign the same area using the design elements studied. Display these redesigned areas in local store windows so as to increase citizen awareness.

2. Make a collection of visual-blight images and explain, in each case, the misuse of the design elements.

3. After studying the design elements, redesign a slum area in three dimensional design. It is suggested that the educator first give the students xeroxed copy of a two-dimensional sketch of a defined slum area.

4. To test imageability:
   Take a field trip through a local community without taking any notes, without previous research. Try to form a mental image while walking throughout the area. Back in the classroom, give a concrete form to your image through the use of sketches. Try a group image as well as the individual image.

5. To test imageability:
   Choose one landmark and visualize its changes as it passes through time, weather and season.

b) Physical Elements:

6. Study a local walking path in terms of its scale. Mark off the events along the way as you walk along the path. Discuss its kinetics. Suggest recommendations for change in both scale and kinetics.

7. To study the credibility of landmarks, have the students ask people for directions in a local community and make notations on the number of times that local landmarks are referred to.

c) Scale:
8. Bring students to the nearest large city and make detailed sketches of the microscale. Back in the classroom evaluate the quality of the existing microscale and write up a recommendation for suggested changes.

9. Show students examples of a variety of floorscapes that you have collected. Design a grouping of five floorscapes for use in a small community. The floorscape should carry out the theme of the town, for example, a nautical town, industrial town, lumber town and so forth. Each floorscape must somehow be tangent to the next floorscape with a feeling of continuity and unity flowing from one to the other. Textures should be simulated.

10. Find one small object outdoors and evaluate it in terms of use, placement in space, physical condition, availability, function, sociospatial effect and so forth.

11. Design a set of traffic symbols without the use of words. Shape, line and color must convey the total meaning. Since vision is an international language, these traffic signs would break down national and state barriers and should be direct without the need of learned concepts prior to driving in a foreign area.

12. Take photos of poorly designed houses in residential areas of a small town. Redesign the houses by trying to capture the essence or feeling of the town's humanscale. For example, the area may abound in the use of shingle, marble, clapboard, slanted roofs, weather vanes, stained glass or bay windows. Retain the original structure of the house while redesigning it.
Designing a set of traffic symbols without the use of words
Fig. 22
- Top left: jewelry store
- Top right: bank
- Bottom left: ice cream store
- Bottom right: music store

Fig. 23
floorscape for a main street

Two floorscapes designed for the city
Designing floorscapes with simulated textures
Designing floorscapes to fit the theme of the town: A and B are planned for a seaport and C was designed for a lumber town.
Two floorscapes using symbols
Fig. 29
Testing imageability:
This is what one student remembered about a walk through Worcester, Massachusetts. The sketch was done seven days after having taken the walk. No sketching or talking was allowed during the observation walk.
Investigating the microscale:
These sketches were done by a student in the city of Worcester, Massachusetts.
CHAPTER II
ORGANIC/INORGANIC RELATIONSHIPS

I. VERBAL SYNOPSIS

This chapter explores organic/inorganic relationships in two different ways: 1) Verbally, it explores two organic structural-systems used to design man-made objects: a) the crystalline system and, b) the articulated system. The crystalline system explains the concepts of the modulus, modules, the total system, the basic unit, mutations and a definition of terms used. The articulated system is explained in terms of skeletal structure and its distinctive differentiation from mass as form.

2) Visually, this chapter explores the parallels and similarities that exist between nature's object and the object made by man. The similarities between the two are stressed visually so that the educator might with greater ease motivate his students to utilize the two organic systems of structure found in nature's object.

2. VERBAL CONTENT

The first method of searching into organic/inorganic relationships might be through a study of crystalline systems. The following rationale explains the pertinence of this investigation.

Our inorganic world is changing rapidly. Through technology, man has built gigantic machines that are constructing visual monsters. The very machine that man has invented is now in control of him. As a result, man is losing sight of the tie between man and nature, between the organic and the inorganic. He is losing identity with himself as
his environment is no longer an extension of the organic "self." De-
personalization is the hallmark of many functional structures built with-
in the last twenty years. If this salient characteristic is to continue, our species will in the not too distant future suffocate beneath its own visual trash. ¹

What can we do to stop this blight—this conflict between nature and the object? One method might be for the educator to encourage his students to investigate the visual links that have persisted as common bonds in organic-inorganic relationships throughout all of the ages of mankind. These visual links, or systems, could be deductively surveyed and reduced to the basic unit, or core, of their articulation. The writer believes that these visual links that repeat themselves over and over again as archetypes must be utilized if man is to build visual structures that are in harmony with the organic self. Nature's structural systems, once rediscovered, can be extended and projected into the designing of the man-made object. This designing technique should help to amend the current environmental visual-blilt.

An Introduction to the Crystalline System

Pursuing this investigation into natural or organic systems versus man-made systems, one might ask such basic questions as: What is the link between a daisy, a Rosette window and a ferris wheel? What is the link between a vulture's wing and an F-102 jet? What is the link between a fossil shell that lived 175,000,000 years ago, an Ionic Greek column and a spiral staircase? To find the similar links, or repeated archetypes,

one must search into the basic organic unit of the daisy, of the wing and of the shell. Each one of these organic crystalline structures can be deduced to: a) the modulus, b) the modules and, c) the crystalline unit.²

a) The modulus:

A modulus is the elementary organic or geometric unit. It is very basic and cannot be deduced any further without loss of identity.

b) The modules:

Modules are repeated combinations of the elementary organic or geometric unit. The simpler the module, the more possibilities exist for complex combinations. Forms evolve from the roots up, emerging from the properties of the basic units. In great periods of architecture, the module was accepted as a principle essential for structural and visual unity. For both the Greek and Middle-Age masterbuilder, commensuration by modular construction was central, understood and used.

c) The crystalline unit:

The crystalline system is the repeated pattern of the crystalline unit just as the crystalline unit is the repeated pattern of the modules. A crystalline structure means a system in which the atoms are arranged so as to form a pattern which repeats itself in space, more or less regularly, like the pattern on a chessboard or wallpaper, but in three-dimension instead of two-dimension. Some substances are more imperfect than others: a hair, for example, is less crystalline than a snowflake; but we know that every true solid is an arrangement of atoms in a repeated pattern, the patterns being all different for the different

²Lengthier and documented definitions conclude Chapter II's section on crystalline systems. These were condensed here for more expedient use as resource-material for the educator.
solids and the unit of pattern being extremely small, so that even a grain of salt contains millions of repeats. It is this regularity of internal structure that leads to the forms so typical of natural crystalline structures.3

In order to clarify the concept of the structuring of crystalline systems, the writer has designed several crystalline systems using the modulus and modules forms. These are on page 66 under the section called visual content (Fig. 31).

The Basic Unit:

In studying the crystalline system, the student should develop the ability to observe keenly enough to be able to find the basic unit of structure. As an example, if you look at a daisy very closely, you will find that the structure of it is basically . This crystalline can be broken down yet further to this: . However, it cannot be broken down any further; for then, it would lose its identity, or essence. Thus, — for example, does not suggest the structure of the daisy; neither does this: . Although the same lines are used, they lose their identity as a floral, radiating characteristic. Again, a ferris wheel without this repeated character would cease to be a ferris wheel. And a spider web without is not a spider web!

Mutations:

While observing the crystalline system, note that each visual illustration suggests only ONE means of building a crystalline. Actually, thousands of combinations, or mutations, are possible. For example,

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No doubt, thousands of additional mutations are also possible.

**Crystalline Systems Defined:**

**Organic design:**

Collier, in *Form, Space and Vision*, says that the implication of the word "organic" is one of a living condition, or of a systematic, non-accidental organization of parts. ⁴

Schenneller defines organic as logical and natural growth, a harmony within the structure, and a sense of belonging. ⁵

According to Frank Lloyd Wright the word "organic" rejects "style" or "period." In any good organic structure, Wright says, it is difficult to say where the house begins and the garden ends. ⁶


Modulus:

Kepes defines "modulus" as the standard of common-measure; or the "common-ratio." He states that a design is perfect, or we obtain "eurhythmy," when every part has its right ratio or measurement.  

Modules:

Kepes defines "modules" as the repeated combination of elemental geometrical units. In great periods of architecture, the module was accepted as a principle essential for structural and visual unity. The simpler the module, the more possibilities for complex combinations. With the simplification of the basic unit comes greater richness in structural solutions. Also, forms evolve from the roots up emerging from the properties of the basic units.

Crystalline:

By a crystalline structure, states Lonsdale, we mean one in which the atoms are arranged so as to form a pattern which repeats itself in space, more or less regularly, but in three-dimension instead of two. It is the regularity of internal structure that leads to the geometrical forms so typical of natural crystals such as fluor spar or calcite, but many substances which do not exhibit the external features of a crystal are now known to be crystalline in their internal atomic arrangements. This applies, for example, to metals, to shells and to clay. We want to know what is the underlying pattern in all of these substances, because if a few kinds of atoms can form so many different kinds of solids, then obviously it is the way in which they are put together that gives the


8Kepes, Landscape, p. 332.
solids their various properties. A snowflake, a hailstone, a sheet of ice are all ice; they are all just hydrogen and oxygen put together so that the same fundamental unit of pattern is repeated thousands of times in all directions in space, and yet there is obviously something still to learn as to why a snowflake has such feathery beauty as compared to a hard hailstone.\(^9\)

An Introduction to the Articulated System:

A second method of searching into organic-inorganic relationships might be through a study of articulated system parallels. An articulated system means that the form possesses a discernable skeleton. All natural objects, however, do not consist of skeletal structure, some consist of "mass." For example, a stone or a cloud is a mass form; whereas, a flower or a tree is a skeletal form.\(^10\)

a) Skeletal structure:

A skeletal structural form may be defined as structure represented by a number of lines moving in different directions, all connected to a main stem by a series of joints in what is known as an "articulated system." The linear structure of the object defines the space which the object occupies. A skeletal object, unlike an object of mass, constitutes a number of parts joined or flowing together as a series of links.\(^11\)

For the environmental designer, the looking for an articulated system should become a habit so that he becomes able to project the dandelion seed into the same form as a contemporary architectural structure.

\(^9\)Lonsdale, Landscape, p. 358.


\(^11\)Collier, Vision, p. 33.
When he is faced with a complex form, his eye should be able to discover the skeletal structure.

b) Mass:

So as not to confuse skeletal structure with mass, the designer should realize that mass has the characteristic of surface shape. Mass objects often seem to have a gentle swelling and seem inert, lumpy, awkward when compared to skeletal structure. Mass objects displace space with solid volume.  

How can the articulated system be applied to the designing of the man-made object? When designing a chair, for example, the design must create a system of joints that is organic in feeling. The legs must belong to the seat, the seat to the back in a relationship related to organic growth. Without this relationship, the chair will look thrown together. 

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12Collier, Vision, p. 52.

3. VISUAL CONTENT

CRYSTALLINE SYSTEMS VISUALIZED

Fig. 31
The triangle form.

Nature, dwelling for the living (American Indian), and, dwelling for the dead (Egyptian Pyramids).
Fig. 33

A. The Western United States

B. Upper: Hockey Rink, Yale
   Lower: TWA Center, Kennedy Airport

Organic/Inorganic Parallels expressed in the Visual Language
Fig. 34

A and B. Rosette windows

C. Snowflake crystal

D. City plan of the Middle Ages

E. Arch of Triumph in Paris

Organic/Inorganic Parallels expressed in the Visual Language
Organic/Inorganic Parallels expressed in the Visual Language

Fig. 35

A. Spider's web
B. Milkweed
C. Ferris wheel
A. Spiral staircase
B. Fossil shell, 175,000,000 yrs. old
C. Analogue computer patterns

Fig. 36

Organic/Inorganic Parallels expressed in the Visual Language
Fig. 37

A. Geodesic dome

B. Photomicrograph of a transverse section of wood

Organic/Inorganic Parallels expressed in the Visual Language
Following are some suggestions for student projects that are related to the content. They are intended to be solved visually by the student through the direct experience of a studio-course situation. The projects should help the student to develop the habit of looking for both crystalline systems and articulated systems when observing nature's object and the man-made object. The ideas for projects, which should be handled with great flexibility by the educator, are accredited to the writer. These ideas involve the areas of: a) organic/inorganic design, b) the crystalline system and, c) the articulated system.

a) Organic/Inorganic Design:

1. Camouflage is an extension of nature's color and forms onto the man-made object. Research into camouflage. Write a one page paper on one example that you find. Apply the use of camouflage to a man-made object. You might use something like the following format:

<table>
<thead>
<tr>
<th>Nature</th>
<th>Animal</th>
<th>Man-made Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>(visual)</td>
<td>(visual)</td>
<td>(visual)</td>
</tr>
</tbody>
</table>

2. This problem involves technological synthesis. Technology is turning our world into a phoney world. Give visual examples of the ways in which real materials are being substituted by the synthesis of technology. For example, contact paper with a wood pattern is replacing real wood, copper coins are replacing real silver coins and plastic flowers imitate real flowers.

3. This problem involves the relationship between organic forms and man-made forms. Have each student bring to the studio any one interesting and functional object made by man. Go outdoors and look for a similar pattern of growth in nature. With the object still at the student's side outdoors, have him sketch both the man-made object and nature's duplicate. Label both forms.

4. Study the natural grouping or natural arrangement of organic forms outdoors. Do several sketches of groupings and sub-groupings. Here are some examples: --a group of snails on a rock --a group of flowers growing --a group of cells through a microscope --a group of leaves on a tree --a group of animals in a herd --a group of people within a building
--a group of ants or bugs
--a group of rocks or pebbles . . . and so forth . . .

In class, use these sketches to design a plan for a new town using cluster development or planned unit development. Another idea is to use these sketches to try to figure out optimum population densities for dwelling areas. Also, investigate sub-grouping variables and constant factors that exist between these various types of groups and then, relate this visual input into the planning of population densities required for architectural forms.

b) Crystalline Systems:

5. Show the students examples of crystalline systems such as those visualized under section three: "visual content." Then, have the students construct in three dimensions a modulus, modules, crystalline unit—after the student has been given a definite modulus constant factor such as: √. Using a one, two, ten ratio, the student is to build up a crystalline unit; and then, he is to repeat the crystalline unit three times so as to create a crystalline system. This gives him a one-two-ten-three ratio. Poster board or railroad board is a good material to use for this project.

When the structure is completed, the student can then do a detailed sketch of his own construction showing the modulus, modules, crystalline unit as a system. Next, the student can create a functional use for his structural-design and create a drawing rendered so as to express this function. For example, he may see his structure as a concert hall, as a home for the aged or as a school cafeteria.

6. This problem relates nature to the object through the use of the crystalline system. Give each student a leaf of a different shape. The student is to analyze the leaf so as to discover the crystalline system. He is to make several detailed drawings of the structure starting with the basic unit and working up to the complete system. Then, using old magazines, he is to find a man-made object that uses the same system. He is to mount the sketch next to the photo along with a sketch of the leaf. Example:

<table>
<thead>
<tr>
<th>realistic sketch of leaf</th>
<th>module crystalline system</th>
<th>photo man-made object</th>
</tr>
</thead>
</table>

Next, the student is to design his own functional man-made object based upon the found crystalline system.

7. This problem deals with mutations: visualize external surface changes created by the internal change of crystalline formation. For example, paint the surface textural qualities of the forms created by the mutated combinations of oxygen and hydrogen as follows:

snowflake--feathery
hailstone--hard
ice-sheet--opaque
glacier—solid but flowing  
ice—transparent  
water—liquid and fluid  
steam—foggy and soft  

c) Articulated Systems:  

8. The student is to find a natural, organic object—one in which he can find a dominant unit that repeats itself. It may be that the object will not reveal this unitary aspect from the outside. It may be necessary to cut into it and examine it internally. Look very closely at the object and select the smallest basic unit from which the entire object is built. Sketch this small unit from various view-points. The student is then to use this unit in a new structural system to produce a new natural form—or mutation. For the new natural form to be convincing, it must appear to be the result of organic structure. More concise directions:  
a) Find an organic formation such as a seed-head, weed or flower.  
b) Examine it to find its smallest unit of structure.  
c) Extract this part and make several small sketches of the basic unit from many angles.  
d) Make a drawing of the complete object itself.  
e) Now, with this knowledge behind him of the part and of the whole, the student is to design a new plant form. He must take the small unit and by inventing a new grouping system of the parts, produce a totally new object. This new object will be a variant or a mutation, or a development, from the original. This object has not yet been seen in nature but could plausibly be produced by nature except that the student is the designer instead of nature.  

9. a) Collect specimens of objects with a skeletal structure: grass, twigs, seed-heads, leaves, animal skeletons, feathers, bird wings—and so forth.  
b) Choose one from above and make a strong black line drawing that reveals how the object "holds together" through its skeletal limbs. Use a black felt pen for this problem.  
c) Ignore secondary detail, ignore edges of the outer form, use an x-ray approach. Ignore the outer surface or "skin" of the object.  
d) Place a dot every place that the structure changes direction. That is, where the skeleton limb makes a change of direction, indicate the joint by means of a dot before you move into a new direction.  

10. This problem is designed to help the student understand the concept of "mass." The students are to collect three objects of mass structure such as an egg, a stone and loaf of bread. In class, they are to draw the volume of the mass of the three objects which have been arranged on their desk as a still-life. The students are to do two renderings. The first will express mass through the use of lines running over the surface of the mass, and the second rendering will express mass using a wash tone to create form of the mass.
Organic/Inorganic Design

Students used their outdoor sketches to design a plan for a new town.

Top left--realistic sketch
Bottom left--sketch is distorted to form a cluster development
Right--the planned new town based on nature
A three dimensional crystalline system constructed by a student.

Fig. 40

A detailed sketch of the structure rendered in pencil.

Fig. 41

The sketch is transformed into a piece of architecture. In this case, it became a concert hall.

Fig. 42
Fig. 43  The crystalline system

A hunting lodge designed by relating nature to the object through the use of the crystalline system.
Fig. 44

An example of an articulated system

Left--realistic sketch of a weed
Middle--the basic unit of the weed
Right--a new grouping system, a mutation, or a variation from the original pattern of growth.
Articulated systems:

This drawing by a student reveals how the object "holds together" through its skeletal limbs. At each dot there is a change of direction.
Fig. 46

An example of mass-structure

Three objects expressing volume through the use of lines running over the surface of the mass.
CHAPTER III

A CASE STUDY IN ENVIRONMENTAL ANALYSIS

I. VERBAL SYNOPSIS

Chapters I and II of this paper have been written on the level of abstract conceptualization about the environment in general—Chapter I: the city environment and Chapter II: nature and the object as environment. Chapter III, in contrast, presents a specific and concrete example of an environmental analysis.

This chapter presents a case study in environmental analysis for the purpose of giving the educator a structural-model for similar studies. By the term "environmental analysis" is meant that every possible component of the town was surveyed using the following methods: a) research, b) personal interviews and, c) through vision as the primary mode of sensory perception. Using these three methods, all possible aspects of the town were surveyed.

Deerfield, Massachusetts was chosen for this case-study because this town is expressive of both minimum and optimum living environments. Deerfield consists of two distinct areas under the political jurisdiction of one township. The two areas are called "Deerfield" and "South Deerfield." Deerfield is the historical area of high social strata and South Deerfield exists as the service area to Deerfield. South Deerfield is also the largest farming area. A detailed structural-model, which was used for this analysis follows. This model could be used by the student for any environmental analysis.
A STRUCTURAL-MODEL FOR ENVIRONMENTAL ANALYSIS:

I. CULTURAL AND PHYSICAL COMPONENTS:
   a) Topography
   b) History
   c) Extracts from the Town Report
   d) Interview Report from the Welfare Office
   e) Transportation
   f) Population Census

II. A VERBAL ENVIRONMENTAL SURVEY:
   a) Geographical Area
district to be studied
   b) Pollutants
visual, auditory, olfactory
   c) Pedestrian Annoyances
traffic, indirect routing
d) Traffic Control
    sign control, billboard, flow of traffic, readability of
    official signs, etc.
   e) Greenery
    1. Parks and Playgrounds:
       play equipment, supervision of children, location,
       availability, size, function, esthetic conditions, etc.
    2. Natural Green Growth:
       trees, malls, store front greenery, gas station
       greenery, potted plants, etc.
   f) Places for People
    1. Community Organizations:
       clubs, scouts, unions, church and other meeting places
    2. Civic:
       malls, plazas, sidewalks, bike paths, cafe, decks,
       etc.
   g) Street Furniture
    telephones, benches, mail slots, trash containers, wash
    rooms, etc.
   h) Civic Art
    sculpture, murals, mosaics, stained glass, paintings and
    other fine art objects in sight.
   i) Points of Reference
    landmarks, nodes, historical sites, towers, quaint places,
    etc.
   j) Historical Buildings
    upkeep, need remodeling, sand-blasting, interior con-
    ditions
   k) Recommendations for change
    channels or ways of creating the needed change

The "Visual Content" section of this chapter uses vision as the primary mode of sensory perception to interpret the remainder of this structural-model as follows:
DEERFIELD, MASSACHUSETTS—A CASE STUDY IN ENVIRONMENTAL ANALYSIS:

I. CULTURAL AND PHYSICAL COMPONENTS:

a) Topography

Three hundred years ago, the waters at the foot of the Green Mountains in Vermont merged into a river which came gushing through the western hills of Massachusetts and spread out into placid still places along the meadows of the wide valley known as Deerfield. The Indians called the area "Pocumtuck," the name of their tribe. This was to them a favorite spot. Nobody knows how long they lived there. Wherever the land rises above high-water mark of the spring floods, traces of their habitation can be found. Arrowheads, stone implements and bits of pottery are still being turned up by the plow.¹

After the era of the Indians, eastward from the dwellings in the village, home-lots extended to the hill—westward to the river; each family had also its share of tillable land, a pasture on the mountain and a wood lot. The divisions of meadow land were known as cow-commons and the name "first and second division" are kept today. The wayward river sometimes carried off large portions of field along its edge and left

uncovered new land on its opposite shore. Farming was almost the only industry. Tobacco and onions gradually superceded the other crops, but one by one the great farm barns have closed their doors or have been converted into studios. The home lots have become lawns or gardens; the pastures have grown up to bushes and trees. Specialization has overtaken Deerfield, mainly the specialization of education.2

b) History

In its past, Deerfield was the white man's farthest outpost in the wilderness. Today it rests quietly on a slight plateau in the Connecticut Valley, hemmed in by wooded hills. It is located a few hundred yards off the main highway. Without making a conscious effort, it stands as a living monument to Early America. From the seventeenth century until the present, the mile long village main street referred to simply as "the street" has clung to its past history by keeping up its ancient houses. But it is not a sleepy village relying on its past alone. It is alive and alert devoting its energies especially to education. Something else sets it apart. Many of its handsomely furnished homes are permanently open to the public. Thus it has several of the virtues of other assembled or restored communities while retaining its current life. Its fields and meadows are still farmed by local farmers. Deerfield began as an advance outpost in the wilderness, an isolated grant of land surrounded by Indians who were, according to Chamberlain and Flynnt, "friendly at first but were urged on by other tribes to become hostile." Actually, one wonders if they became hostile because they were urged on by other Indians or urged on by Americans.3


3S. Chamberlain and H. Flynnt, Historic Deerfield, p. 5.
John Pynchon, an active trader in the region, was commissioned to buy eight thousand acres of land from the Pocumtuck Indians. This tribe had once been proud and powerful, maintaining its supremacy until the middle of the seventeenth century when a fierce war broke out between it and the Mohawks. After that war only a sad fragment of the Pocumtucks remained. They were no doubt in need of the white man's cash so that the transition was closed with ease in 1667. The price paid was extremely high—four pence an acre. Deeds for a part of this purchase are still on exhibit in the village.¹

There was a lull of more than three years before the first settler arrived on the scene. This was Samuel Hindsdell of Hadley. Things moved rapidly after that. The struggle between nature and hostile man had begun. By 1673, twenty families had arrived and they helped each other build houses and plant fields. By the spring of 1673, the community had laid out its village street and appointed its house lots essentially as they remain today. In May of the same year, the citizens petitioned for an independent town and it was granted to them. The name of Deerfield first began to creep into official papers in 1674. Population had now reached 125 people. Hemmed in between the hills, the settlers were constantly aware of the threat of Indian raids. Citizens carried guns everywhere. Even in church, the atmosphere was tense.⁵

However, on the eighteenth of September 1675, disaster overtook the white men. More than 700 Indians of "King Philip's Indian Warriors" massacred sixty-four men who were on a convoy with food from Essex.

¹S. Chamberlain and H. Flynnt, Historic Deerfield, p. 5.
County. They were killed near a brook and even today this brook is called "Bloody Brook." After this blow, Deerfield was long untenable. Its survivors drifted southward and left the town to the Indians. The settlement sank back into Pocumtuck wilderness. A few men returned though in 1677 and started to rebuild, but eventually they were captured and carried off to Canada, the first of many captives to follow that trail. The French were offering cash bounties on English prisoners. In 1704, another horde of Indians, trained by the French, broke into houses killing as they went. Of the town's inhabitants forty-eight were slaughtered and 111 were taken prisoners. All houses were burnt except for the one surviving house of John Williams. An unspeakable ordeal awaited the prisoners. Their captives forced them to march northward through the snow for 300 miles where they were loaded on sled and taken to Montreal. The young and the old alike were forced to march on or were slaughtered if they could not. Deerfield in its early days, then, had been a "frontier for freedom" as both English and French strove to gain political control. The assistance of the native Indians was eagerly sought by both. The last real raid in the town occurred in 1746. By the mid-century, the town became the center of a wheat industry and cattle market. There began noticeable architectural changes along "the street." The more primitive abodes of the early days were supplanted by gracious clapboard houses. The inherent good taste of these inhabitants became evident in the furnishings of homes. Some of the primitive furniture gave way to pieces made by Connecticut Valley craftsmen or to imports. Deerfield's hard-bitten farmers began to enjoy amenities in their lives.  

Then the struggle for independence came and split the village

6S. Chamberlain and H. Flynnt, Historic Deerfield, p. 6.
population into two camps—the Whigs and the Tories. The village assumed new importance as a cattle market and became a commissary for troops. But Deerfield was not destined to the life of a dull agricultural community, nor was it to become the metropolis of the area. The latter role fell to Greenfield. With worries of war out of the way, in 1787 fifteen citizens formed a "Proprietors of the New School" and established Deerfield Academy. Students first came to the Academy from forty-two different towns and the town still is noted for this educational institution.  

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c) Extracts from the Town Report

DEERFIELD TOWN REPORT—ENDING DECEMBER 1970 8

Deerfield:
First Congressional District
Eighth Councillor District
Franklin-Hampshire Senatorial District
Third Franklin Representative District

Settled: 1669
Incorporated: 1673

Location: In Connecticut Valley on routes five and ten, Interstate ninety-one and Massachusetts route 116.

Area: 33.57 square miles

Population: 1965 census: 3,481

Form of Government: Town meeting

Tax rate: $70.00

Valuation: $7,523,080,000 Real estate
1,300,695,000 Personal property
$6,823,775,000 Total valuation

Public Schools: Two elementary, Frontier Regional Junior High and Senior High School

Private Schools: Bement, Deerfield Academy, and Eaglebrook School

7S. Chamberlain and H. Flynnt, Historic Deerfield, p. 15.

Fire Protection: South Deerfield Fire District and Deerfield Fire District

Town Highways: Eighty miles, twenty-five streets

Public Libraries: Dickenson Library, Deerfield and Tilton Library in South Deerfield

Railroad: Boston and Maine, freight only

Bus Lines: Peter Pan and Vermont Transit

Manufacturing: Deerfield Plastics
Farm Bureau Associates
Harding Industries
Kerr-McGee Chemical Corp.
Lake Asphalt and Petroleum Co. Inc.
Oxford Pickles, Division of John Cain Co.
Warner Bros. Inc.
Richard's Candy Shop
Tilo Siding
Rambose, Inc.
T. Walter Pekarski and Sons

Park: Mt. Sugarloaf State Rezervation

Water Supply: South Deerfield Water Supply District, Deerfield Fire District

Service Clubs: Rotary, Lions, Redmen, Masons, Polish American Citizen's Club, Post 3295 Veterans of Foreign Wars, Post 229, American Legion

Surveyor: Gordon E. Ainsworth

Budget Administration: General government $35,000
Protection of persons and property 35,000
Health and Sanitation 17,100
Highways 35,000
Charities and vet's benefits 3,000
Schools and libraries 656,000
Recreation and unclassified 15,500
Care of trees and plants 3,750
Insect control 1,500
Dutch elm disease 6,000

Police Report: Accidents investigated: seventy-two
Complaints received and investigated: 533

Planning Board Report: The merits of establishing an "Emergency Center," a radio-telephone dispatch and information center for fire, ambulance, highway and resource needs was discussed.

Public Schools: Enrollment of all Deerfield students from grades one through high school: 956 students
Salaries: B. A. minimum $6,000 up to Master's with thirty hours: $9,800.
d) Interview Report from the Welfare Office:

The welfare office is State operated but it was town operated until 1968. The supervisor was asked if welfare evolves heavily around tobacco crop-workers. She said "No" because they are hired by tobacco companies and are used after the picking season in the tobacco factories. Most of these workers are Puerto Rican and the factories are in Puerto Rico. There are at the moment 110 welfare cases in all of Deerfield. This is about average Statewide in proportion to population. In regards to employment, Deerfield is a "bedroom" town for employees in Greenfield. A large percent of the total population is employed in Greenfield. The remaining farmers, the supervisor said, are self-sufficient in the winter time and seldom need welfare help. The distribution of cases is rather evenly spread over all of Deerfield. There are not more cases in South Deerfield than in Old Deerfield as one might suspect. Also, cases are not confined to one side of the railroad track as one might assume.

e) Transportation

The Railroad:

The Boston and Maine Railroad runs the length of both South Deerfield and Old Deerfield; it divides both sections right in half. The railroad is paralleled by the bypass road--route ten to Greenfield. The railroad does not divide the town into two different social structures --that is, the wrong side and the right side of the railroad track. For example, one can find gracious homes on both the east and the west side of the track. Figure 47 below shows the direction of the track.

9Mrs. Cheney, private interview held in the welfare office of 207 Main Street, Deerfield, Mass., May, 1970.
II. A VERBAL ENVIRONMENTAL SURVEY OF SOUTH DEERFIELD:

Although the writer has surveyed the environmental conditions of both Deerfield and South Deerfield, only the latter is presented in this paper. Since the purpose of this chapter is primarily to set up

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a structural-model for similar studies, a second recording of the evaluation of Deerfield would be redundant and of no concern to the educator using this resource material. Following is an analysis of the environmental conditions of South Deerfield:

a) **Geographic Area**: North to Braeburn Street  
   South to Sugarloaf Street  
   East to Elm Street  
   West to Graves Street

b) **Pollutants**:  
   **Visual**: Too many cars in the public square area block off the visual view of that area. No parking should be allowed near this small green area.  
   Too many road signs overlap each other. As a result you cannot read any of them.  
   Each business or store has too many signs and posters glued to the inside of the front windows.  
   **Auditory**: Too much noise from large trucks. They should be banned from this area.  
   **Olfactory**: Air is fresh. Air pollution level seems low. Deerfield Plastic Inc. giving off thermal pollution in the backyard brook.

c) **Pedestrian Annoyances**: Litter and garbage are all over the back alleys and inside telephone booths. There is only one mailbox in the core area. The street signs are too old and worn out to read when looking for streets.

d) **Traffic Control**: Refer to section three: "Visual Content."

e) **Greenery**: Parks and playgrounds: There are none but perhaps they are not needed since every home has such a large yard to play in. There is no play equipment for children within the area.  
   **Natural green growth**: Refer to section three "Visual Content"—"Evaluation of the Triangular Common."

f) **Places for People**:  
   **Community Organizations**: Polish American Club. There is no boy's club, no "Y," no senior citizen's club.  
   **Civic**: The triangle common is the only place for people. Nobody is using it on this sunny day; therefore, it does not function well.
There is no floorscape planned on a conscious level within the core area.

Sidewalks are wide enough to support street life, but the Texaco station in the core area has turned its sidewalk area into a vehicle area.

There are no bike paths for children.

g) Street Furniture: It is all in need of repair or replacement. Telephone wires should be placed under the ground in the core area at least. The street lights are too tall and therefore out of human ratio scale. The Texaco station would be an ideal locale for an outside cafe.

There are no parking meters here. Good! Meters are visual blight. Why not assess a yearly tax instead of meters?

Core area could use a few clocks outdoors

There are no shelters for waiting for the bus in cold weather.

h) Civic Art: There is no sculpture in the core area; not even a crafted weathervane. There is only a granite tomb-plaque in memory of the war dead.

There is no stained glass window in the church. No murals are in sight. No feeling of objects that have been created by living people.

i) Points of Reference: The fountain in the common and the white Congregational Church are the two major points of interest.

j) Historical Buildings: The sign on the Town Hall: "Deerfield Town Offices" looks makeshift and does not have a permanent look to it. The granite on the same building needs to be cleaned. The frontage of the building needs to be broken up with greenery. The architecture of this building is Greek Classical and is certainly not in keeping with Deerfield. The whole building should be reconstructed with that in mind.

The library building needs to be repointed. It is in very poor condition. By contrast, the Congregational Church beside it is in excellent condition. This could be a reflection of the citizen's value-systems.
Recommendations for Change: The general tone of the area is not unpleasant but it has the potential of being not just acceptable but beautiful. One feels that the pride of yesterday has worn thin. The present charms left are the bells from the belfry, the fountain, the white steeple, the feeling of human ratio in the park triangle and the large elm trees.

To create change it is suggested that aware students from the nearby University of Massachusetts create pressure groups in the community so as to work on the suggestions presented within the scope of this survey.

3. VISUAL CONTENT

III. MAPS

Deerfield in 1794:

Fig. 48
MAP OF VILLAGE STREET SHOWING LOCATION OF HOUSES

- Dots near houses indicate they are open to the public.

Dotted line indicates approximate location of 1704 stockade.

Fig. 49 DEERFIELD TODAY
Examples of the microscale in Deerfield, Massachusetts

Sketches by Doris Carter
Examples of the Microscale in Deerfield, Massachusetts
The door to the above right is part of a very modest cottage in Deerfield. This door is a very warm yellow made of cedar wood that has never been painted. The glass windows look like bottom of jars.

Fig. 52
The street lamp to the left is dominated by the tree—not vice-versa. The pole is camouflaged—it is the same color and texture as the bark of the tree. The bulb in the lamp is frosted glass—a soft night light—not hard, not severe.
VI. A VISUAL ENVIRONMENTAL SURVEY OF SOUTH DEERFIELD:
An Analysis of the Village Green—"The Common"

- Signs. Are all of these really necessary?

- Trash containers. They need to be replaced with new ones.

- Bench. They need to be repainted or replaced. see photo.

- Drink fountain. It is broken. no water.

- Fountain. It does work!

- Trees.

- Flower garden. It breaks up the mass form of the lawn. It is too formal. It should be disposed of and lawn replanted there.

Traffic Control:

A. Here it is difficult to pick up Route 116--poor signs.

B. These "Street Signs" are useless from the view of a car.

C. A traffic lady stands here and directs traffic when children leave school.

D. Many cars seem to hesitate here as though they are lost.

E. Pedestrian walks are worn out and need to be repainted.
Fig. 5h

Fig. 55

Street furniture in need of repair,
The Village Common, South Deerfield, Mass.
Two examples of litter left by the telephone company, South Deerfield, Mass.
Visual Pollution.
Both photos taken in the core area of South Deerfield, Mass.
Fig. 60
Left window

Fig. 61
Right window

One small storefront adding to visual pollution,
South Deerfield, Mass.
Too many signs for the driver to read. South Deerfield, Mass.

Fig. 62

Telephone wire box gives a transient effect. South Deerfield, Mass.

Fig. 63
4. VISUAL PROJECTS VERBALIZED

Following is a description of some student projects that could be solved visually by the student. The projects relate to the verbal content in the following ways: group a) suggests projects related to the whole structural-model of environmental analysis as described in the verbal synopsis. Group b) suggests projects concerned with the reconstruction of blight areas and, group c) presents projects involved with the problem listed under: "II. Verbal Environmental Survey."

a) A Structural-Model for Environmental Analysis:

1. Referring to the structural-model outline under the section called "Synopsis," have the students do an environmental study in complete visual form without the use of any words at all except for captions.

2. Using the structural-model outline, have the students do a visual environmental study using slides and a tape-recorder as the media.

b) Reconstruction:

3. Using the reconstructed models shown under "Visual Content," have the students do a similar study choosing a small town in their locale.

4. After having evaluated and photographed a small blight area, have the students as a group physically redesign and reconstruct that area in such simple ways as painting street furniture, picking up litter, planting shrubs and so forth.

5. Through the student senate or other college channels, have the students, as a group, redesign and reconstruct one small area on their college campus, such as camouflaging the parking lot, screening the service area from view, or building a small outdoor patio.

c) Verbal Environmental Survey

6. Have the students sketch the micro-scale of one small town in the area. Back in the studio, the students are to compare sketches with each other to find out what the essence of the town's micro-scale consists of: that is, what types of things are repeated over and over again many times. What has "worn well" through the history of the town? How can these micro-scale elements be projected into the future plans of the same town?

7. Design some civic art such as a mosaic or weathervane for one small town in the area. How can the historic, industrial, or recreational aspects of the town be incorporated into the designing of the civic art? How can these models created by the students become a reality in the
town? What pressure groups can the students form to realize these goals?

8. Have the students design in three dimension one piece of street furniture for use in a small town locale. The student must be able to give a rationale for the structure he has built--the color chosen, the shape and so forth.

9. Have the students design in the third dimension an outside cafe for a small town in the locale. The student must be able to explain where the cafe would be built, the reason for its chosen theme, its relationship to other recreational facilities, and protective devices for inclement weather and so forth.

10. Bring the students on a walk--at which time they must sketch or photograph all landmarks--both distant and near landmarks.
Reconstructing a room:
Above: The "boiler room" prior to reconstruction
Below: After reconstruction--lowered ceiling, rug, sealed and painted walls, furniture and white acoustic tiles. The room is now used as a music lounge during the day, and as a "coffee house" in the evenings.
Ways to Encourage Use of Mass-Transportation

Combination Weather-Shelter & Kiosk located at central bus-stops.

Proposed Geodesic Dome Shelter for Minor Bus-Stop Areas.

Fig. 75. Designing climate controlled shelter for the citizens of a large city can encourage the use of mass transportation.
A student surveys the civic art of her home town as one part of an analysis of that town.
1. VERBAL SYNOPSIS

Chapter IV, like Chapter III, presents a case study for the purpose of giving the educator a structural-model for similar studies.

Section two "verbal content" consists of two parts. Part one introduces the educator to the new field of proxemics by presenting general factual information about the field. The term "proxemics" is defined and the various types of space usage are described as follows:

a) types of body space, b) types of territories, c) types of distances, d) sensual use of space, e) fight and flight as spacial concepts, and f) cultural use of space.

Part two of section two develops a structural-model for use as a guide so that students might make similar studies. For this model, a survey is presented of the use of space on the Campus of the University of Massachusetts. Although five buildings on the campus have been surveyed by the writer, one building, the "campus center" serves as sufficient material to develop a structural-model for the purpose of this paper. Within the campus center, the area pinpointed for study was the second floor which is the area of the main foyer. To clarify this point, the title of the case study is: "A Survey of the Use of Space within the University of Massachusetts's Campus Center Building--Second Floor Foyer."

The visual part of this chapter, section three, presents photos of the area and visual flow charts.
Part 1. An Introduction to Proxemics:

According to James M. Fitch of Columbia University, "proxemics" means specifically: "the study of the behavioral consequences of any set of spatial relationships as the space interrelates with people and as people interrelate with the space."¹

Edward T. Hall, who coined the phrase "proxemics," speaks of it as the interrelated observations and theories of man's use of space as a specialized elaboration of culture.²

The following characteristics of space will give the educator a better concept of the field.

a) Types of Body Space:

Edward T. Hall describes four types of body space: 1) intimate, 2) personal, 3) social and, 4) public. The author proceeds to define these types of space as follows:³

1) Intimate

At intimate distance there is a greatly stepped up sensory input. It is the distance of comforting, love-making, wrestling and whispering. Body heat is felt from the second person; vision is blurred and there is a sense of physical involvement.

2) Personal

At personal distance, one stands between one and four feet from


³Hall, Dimension, pp. 114-125.
the second person. He is able to grasp the second person at arm's length. Visual distortion of the second person is no longer apparent. Objects are pronounced in three dimensional quality and have a sense of roundness, with prominent surface texture.

3) Social

At social distance, one stands between four to twelve feet from the second person. This is the spacial distance of impersonal business and daily business. Nobody touches or expects to be touched. Intimate visual detail of the face is not perceived. Voice level is normal. It is the distance of a casual social gathering. To stand and look down on the second person at this level has a domineering effect.

4) Public

At public distance one stands between twelve and twenty-four feet from the second person. It is a very important distance. The second person is far enough away to be able to react by either fight or flight. It is the distance between teacher and the class, or judge to the jury. The person must speak very loud, project his voice into space and articulate each word on a formal level of speech. Visually, the second body begins to lose its roundness and looks flat.

b) Types of Territories

Lyman and Scott distinguish four types of territories in human societies: 1) public, 2) home, 3) interactional and, 4) body. The author defines these types of territories as follows:4

1) Public

Public territories such as courtyards and parks provide the citizen with freedom of access but not necessarily of action.

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2) Home

Home territories are public areas taken over by groups. Examples would include a children's makeshift clubhouse, homosexual bars and a turf. In each case, the regular patrons have a sense of control over the activity of the area.

3) Interactional

Interactional territories are areas where social gatherings may occur; they have clearly marked boundaries and sharply defined functions. An example would be the movie theater.

4) Body

Body territory is the concept of "personal space"; it is a portable territory that each individual carries with him wherever he goes. It has been likened to a soap bubble, an aura, a breathing room. It refers to an area with invisible boundaries surrounding a person's body into which intruders may not come. Personal space is not necessarily spherical in shape, nor does it extend equally in all directions. The size of the bubble is also related to cultural conditioning and social stratification.

c) Types of Distances:

Edward T. Hall speaks of three types of distance patterns discernable in both animal and human behavior: 1) personal, 2) social, and 3) critical. The author describes these three types of distances as follows:

1) Personal

Personal distance is the constant and normal space that a group of animals maintain between each other. This distance acts as an invisible bubble that surrounds the organism. Social organization is a factor.

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5Hall, Dimension, pp. 11-19.
in personal distance. Dominant animals tend to have larger distances than those that occupy lower positions in the social hierarchy. The following sketch may help to explain personal distance: • = animal/man

2) Social

Social distance is the most comfortable outermost edge from which one can leave the group and still feel safe and protected by the group.

3) Critical

Critical distance is the minimum space requirement needed to survive. When this is no longer available, the organism will take fight or flight.

d) Sensual Use of Space:

Edward T. Hall discusses the uses of the senses as an important mechanism used by man and animal to define space. The author says that a person can see through space for a distance of one mile; he can hear twenty feet away very effectively. He can feel hot and cold sensations if he wishes to rely on thermal space and he may rely on his sense of smell as feedback to determine the quality of the space he is occupying.6

e) Fight and Flight as Spacial Concepts:

Robert Sommer describes various ways in which a person can relate to the space around him. He can invade it, be expelled from it, save and defend it, or allocate too much room to other people. Some examples

6Hall, Dimension, pp. 42-69.
of these special uses are:

1) Space invasion

When a salesman, who is unwanted, knocks on your front door he is invading your space.

When you drive home from work and are "tail-gated" your car space is being invaded.

When a police interrogator sits knee to knee to the person being questioned, this person is made to feel inferior and sometimes even guilty because his personal space has been invaded.

2) Space expulsion

When you sit in somebody's "reserved seat," and are "kicked out," you are being expelled from space.

When youngsters are "moved-along" by police for loitering they are being expelled from space.

When you leave a busy bar faster than you intended to because the music was too loud and the lights too bright, you are being expelled from space; the environment has been consciously manipulated by the owner of the bar to facilitate a rapid turnover.

3) Defending space

A person can save space for himself by reserving it with a worthwhile object such as a book or coat.

A person can save space for himself in a line of people by reporting his intended absence to the stranger in front of him standing in the same line.

4) Allocating too much space

A person will often leave a "buffer zone" between himself and a

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person in a wheelchair. This is unconsciously done, but notice it the next time you see a non-ambulatory person and try to imagine how he must feel!

Students leave a buffer zone between themselves and the instructor. Often the educator must ask the whole group to "move up closer." Like the non-ambulatory, the educator is treated as a leper by the total group. This brings into consideration the possibility of the existence of a "psychological space."

f) Cultural Use of Space:

According to E. T. Hall, the use of space is culturally bound. To cite a few examples so as to make the educator aware of this phenomena, Americans conduct business with the office door open whereas Germans insist on closing the door during business transactions and interviews. Another example: Japanese furniture is arranged in the center of the living room, whereas in Western culture the furniture is arranged around the edge of the room. A third example: Americans who wish to be alone physically shut themselves into a room, whereas the English mentally shut out everything surrounding them and proceed to "be-alone." 8

Obviously, this verbal content material is presented on a rather shallow survey level since in-depth research within this field lies outside the scope of this paper. This task remains for the educator who is interested in proxemics.

Part 2. A Case Study in the Use of Space within the University of Massachusetts' Campus Center Building--Second Floor Foyer

This case study searches into those factors of the environment that are the components of good space-usage. The factual information

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8Hall, Dimension, pp. 132-164.
about space presented in part one of this study must be utilized by the educator and designer if human space is to be concerned with the amenities of human comfort. Are we building buildings to look at or to live in? In other words, the student designer must be involved in designing for human-spatial needs rather than being involved in the designing of abstract shelter covers.

The methods used to collect data for this case study are: a) personal observations, b) student interviews, c) the drafting of flow-charts and, d) photography. The conclusion of the case study follows the visual content and is titled: "The results of the study and recommendations for change."

THE STRUCTURAL-MODEL

CAMPUS CENTER--SECOND FLOOR--MAIN FOYER

a) Personal observations

As I sit in the center of the lounge observing, a cold cross-draft from the large doors is hitting my legs. The two large doors keep slamming and the repetitive noise of it is extremely annoying as I try to concentrate on this study. Why didn't the designers soundproof the door? Also, the doors were very heavy--much too heavy for me to lift open when I entered. It took the whole weight of my body--like a fulcrum just to open the front door. The vertical handle-bar assumes that the whole world is right-handed. Horizontal bars gives us "lefties" a break. Also, the bar is made out of steel. Unless the architect forgot, steel conducts cold, wood does not. Why not a wooden horizontal bar? The whole door is too big. It is out of human scale.

Next, do people use the space for its designed functions? I have no strong image in my mind of what the place was designed for. It seems to function most as a short-cut across the campus to get from one side of
the campus to the next side. At least this is what the traffic pattern suggests. But that's a pretty expensive canopy to get people from one side of the campus to the other! And the doors just get in the way. There is much physical movement of people going from one point to another which gives it the feeling of an airport node.

The seating areas, that is the cushion seats which have not been stolen, are NOT being used for social contact or for social reasons; but rather, for reading and writing as in a library. As the conversation map illustrates, there is very little social contact here. One person is stretched out on the couch asleep; for him, the area functions as a bedroom. It seems to work like this: "A hall is to walk in." "A seat is to sit on." "A bed is to lie down on"--and so forth. In other words, there is no cross-cutting of functions.

To continue with the general atmosphere of the area: As I sit here, it feels like I am in a train station and I keep waiting for a train to pull in. Why does this place feel like a transportation terminal? Let us observe carefully! There are many reasons as follows:

--A huge sign says E X I T -- it yells! Why?

--The escalator located as the focal point of the room must certainly lead to the train tracks!

--Sounds of people echo hollow and bounce back as though you were in grand central station. Where is the porter? I expect to see him at any minute carrying in somebody's luggage!

--The vending machines add to this feeling of a temporary "place to wait."

--The information desk looks like a place to buy your tickets before you take your escalator down to the trains.

--The grey concrete walls add to the aura of a transportation terminal.

--So, too, does the overhead lighting without any sidelamps.

--Also, the lack of carpeting on the floor adds to the transportation effect.
--In the photographs in the visual section of this chapter, note the lack of the microscale. Note the lack of design in relation to the size of the human body.

Here are some examples of the lack of the microscale:

--The wide hall effect of the whole area.

--The huge flagstones on the floor are out of proportion to the size of the human foot.

--The cold immobile slabs of marble called "tables."

--The lack of any low focal point on the walls in ratio to the level of the human eye.

--The discomfort of the chairs. They are too big for my body. They are designed for a 250 pounder.

The huge exit throughways to other exterior areas on the same floor. Did the designer anticipate a traffic jam at the door when the trains come in? The same type doorways lead to the washrooms, too.

Even the wall clock is located where nobody can see it--way up high. Again, it is the only object on the walls. TIME! TIME! Waiting for the 4:05 express on track twenty-nine?

Color? What color! Grey, drab grey slabs of concrete and stone of tomb grey. Cold grey. I am in the interior of a large tomb!

Continuing with general personal observations: The information desk is the least used area. There have been very few people there. Is it information? I'm not sure! There is no sign. I'll go ask. The sign only says: "cafeteria." I asked. Yes, it's information!

People extend their territories by spreading out the daily newspaper around themselves. Other objects are also used, but mostly newspapers and they give the area a very littered look.

Everything in the room is either "fixed to the floor" or else too heavy to be moved. About half of the pillows have been stolen leaving empty wooden benches to sit on. The only other objects that are moveable
are the round floor ashtrays and the floor trash cans.

Rigid, formal placement of furniture prevents social interrelations. The shape of the chairs is that of rigid squares. I feel like a square sitting on a square within a setting of squares. My body actually feels angular and square sitting here.

Notice the present "lack of conversation flow."

Potential for Conversation:
Map taken from lower right section of Figure 77.

A₁ to A₂ = not possible to converse because distance too great for normal voice.
A₁ to B₁ = not possible to converse without twisting around your entire body.
C₁ to A₁ = distance is too great, even though this arrangement is slightly better than the first two; bodies still must twist around.
A₁ to B₂ = Absolutely impossible!

The only alternative under the present situation is to sit on the table in the center and pivot one's body according to the direction needed. An improved chair arrangement is suggested in the section called "Recommendations for Change."

Continuing on with spacial observations:

--There is too much space between pieces of furniture. This makes conversation impossible.

--There is too much space between doorways.

--There is too much space between ceiling and floor. It is out of human ratio.

--In regards to spacial relations between people and objects, people are almost close enough together to talk, but their bodies are faced away from each other (train station style!). So, as a result, they do not talk. Thus, it is the POSITION OF THEIR BODIES AS MAINTAINED BY THE FURNITURE that prevents social intercourse.
In regards to the physical environmental conditions, the piped in music may be disturbing to people who are trying to read or study. The music is enforced upon them. They cannot turn it off.

Some kind of noise is coming out of the ceiling—a hissing sound, perhaps heating.

The water fountains are an example of horrendous design. You cannot get your head all the way into the wall to drink from them.

All in all, second to a transportation center, the place feels like an Egyptian tomb.

b) Personal interview

The personal interview was quite a task. Four people growled at me when I approached them for help. Surely, this in itself must suggest something about the room. One person was only doing a crossword puzzle and obviously was not busy. He growled the loudest. I finally had to leave the place, and I came back another day for a second try.

During the second attempt, the student told me that she can do light reading in the center because it's very impersonal and she likes to watch the flow of traffic. She said that she would never come in here for serious reading, though, and seldom comes here anyway. She said that the walls are just too cold, there should be some large paintings on the walls and there should be much more color in the place.

3. VISUAL CONTENT

c) The drafting of flow charts

The factual information of the verbal content can be utilized by the designer in the drafting of flow charts. These charts, or maps, represent the observation of the use of space over a span of time. The time span chosen was five minutes. By drafting charts such as these,
the student can readily observe what space is being used, and why? What space is not being used, and why? What space is being saved, and how? What space is being invaded, and how? He can relate the use of the space to its designed functions. He can study the arrangement of furniture as it relates to interaction and so forth. The following three flow maps of the case study area were drafted so as to help answer some of these questions:

1. **Aerial View for Orientation and Population Location:**
   - **Orientation:** a general "bird's-eye-view" of the area.
   - **Population:** the place where people are located if they are not moving.

2. **Traffic Flow:**
   The pattern of traffic when people are moving.

3. **Conversation Flow:**
   The pattern of traffic when people are talking. A "Flow Chart."

The following key was used as the code to these maps:

- • = each person
- * = viewpoint of the observer
- ⬅️ = direction the traffic is moving toward or talking toward.
UNIVERSITY OF MASSACHUSETTS

CAMPUS CENTER—SECOND FLOOR—MAIN FOYER AREA

1. Aerial View for Orientation and Population Location

Fig. 77

V = Vending Machine
I = Information
R = Rest-rooms
Note the "Lost Person" here!

To Coffee Shop

V = Vending Machine
I = Information
R = Restrooms

To Cafeteria (closed) Now

Fig. 78

2. Traffic Flow

Fig. 79

3. Conversation Flow
Campus Center, Second Floor, Main Foyer

Fig. 81
The Results of the Study and Recommendations for Change

a) Results of the case study

As a result of this case study the writer has discovered that the occupation of a given area involves TIME as well as SPACE-coverage. In speaking of the use of an area, we might define it as "fluid time space" or "static time space." The former term refers to space used frequently and fast. There is a rapid turnover in populace. "Static time space" is space occupied for long intervals of time. There is a slow turnover of populace.

Secondly, this study has stressed the fact that architects and designers give almost no emphasis to the size and functions of rooms in relation to the scale and functions of man. The amenities of the micro-scale are sadly neglected in favor of the massive and impressive scale. The anthropometrics of furniture design is also neglected.

Third, as a result of this study, the writer has discovered, through the use of the flow charts, that when people converse they most often do so in a tete-a-tete position. They seldom converse, by choice, sitting side by side.

b) Recommendations for change

Actually, the whole campus center building needs to be rebuilt; but, the following is the best we can suggest in lieu of rebuilding:

--Sound-proof the two main doorways.
--Better sound cushioning in the walls.
--Side lamps to read by.
--Carpeting in the area where people sit down.
--Break up the walls with murals or large paintings.
--Lower the clocks on the walls to the level of people's eyes.
--Break up the large areas of grey color by: carpeting, painting, mosaics, and/or colored cushions.

--Replace present chairs with mobile chairs.

--Take off vertical steel door bars and replace with horizontal wooden door bars.

--Place screens near the main doors to cut off the draft.

--Cut down the space over and around the doorways.

---Three suggested chair arrangements: (nine chairs and one table.)

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---Three suggested chair arrangements: (nine chairs and one table.)

1. VISUAL PROJECTS VERBALIZED

1. Select any one room on campus and compile a case study in visual space usage. Some suggestions:

a) Make an aerial view map of the area, a traffic flow map and a conversation flow map. These maps along with your own visual observations should help to answer the following questions:

---What activities are taking place (that is, is the space being used for the function for which it was designed or are other uses taking place?) Are multi-function uses taking place?

---What space is used the most--and why?

---What space is used the least--and why?

---How do people save space for themselves?

---How do people save space for other people?

---Study the arrangement of furniture as it relates to interaction.
--Study physical environmental conditions and their effect on the use of space. For example, do people move away from an area because of window draft? Do people congregate in a given area because it is warm?

--Study spatial proportions: that is, the amount of space between objects—between people and objects—between one person and another person, and so forth.

--Report on the general tone or atmosphere of the room.

--Talk to students. Ask them how they FEEL about the room. Compare their feelings with your feelings. Report on this.

--Take any photos, make any sketches, diagrams or maps that will help to clarify or illustrate your verbal information.

2. Choose one small room for study. Make a variety of visual arrangements of the furniture within the room. Give a rationale for the moves.

3. Study physical environmental conditions and their effect on the use of space. Examples: indoor climate control
   interior lighting
   availability of water fountains
   outdoor open spaces
   children's play areas
   outdoor safety features

4. Find out how the use of one's personal space differs in the following changes of environment: home, school, shopping, commuting, work, recreation, community activity, contact with nature, and so forth. Express these differences using vision as the language.

5. Draw a diagram of your own personal space as you visualize it. Next place this space under various personal emotional conditions such as stress, delight, fear, freedom, and so forth.

6. Investigate cultural use of space in greater depth than was possible within the scope of this paper. Express these cultural differences in visual form.

7. Find out through personal observation how many possible ways there are to save space for oneself. Express this in visual form. For example:

   ![Diagram of library tables]

   seat pushed out
to extend space

8. Have a group of students go into a local institution such as a mental hospital or correctional institution and study interactional patterns. Then, experiment with the visual rearrangement of furniture and keep a log on personal interactional changes—or lack of changes. How do these visual changes affect behavior of the patients or inmates?
9. Have the students rearrange their own furniture Japanese style—in the center of the room. Keep a log on behavioral changes created by the physical change. Evaluate these changes.

10. Go through a day role playing the behavioral space patterns of a person from another culture. Evaluate the effect of this change on your own day. Have somebody take motion pictures of the role playing spacial relationships.
Visual arrangement of furniture
The student lounge at Worcester State College, Worcester, Massachusetts as visualized by a student—before and after views.
Light weight tables which are now used shake whenever you try to write on them.

Heavier tables would be much better.

Florescent type light bulbs used in most class rooms would be an improvement over this block arrangement of lights. Florescent type bulbs cut down on the number of shadows.

Fig. 83

a better set up by putting the doors to one side of the building, would have helped to cut down on the drafts.

Case Study in Visual Space Usage:

This page is just a sample of a part of a case study in visual space usage compiled by a student who was analyzing one room on the Worcester State College Campus, Worcester, Massachusetts.
Some examples of cultural space differences as expressed by a student at Worcester State College, Worcester, Massachusetts.
Fig. 85

A student's personal space visualized under various emotional and physical conditions.
Fig. 86

A student's personal space visualized under various emotional and physical conditions.
Saving Space in Line:

E leaves after notifying D, F pushes in close to D but the space is still "psychologically saved" and will open up again when E returns.

Space Preference:

At the cafeteria people seem to prefer the space next to the door so that they can make a fast getaway after eating.

Expanding the Personal Bubble:

Above:

Extending the personal bubble when one is alone. However, the above behavior is considered as impolite if another person is on the opposite end of the table. The table is then apt to be unconsciously "divided in half." -- as below:

Fig. 87

Space Observations in Visual Form:

These observations of space usage were discovered and visualized by a student at Worcester State College.
CHAPTER V
THE HUMAN HABITAT AS A SPACIAL FORM

1. VERBAL SYNOPSIS

Man has been concerned with the manipulation of visual space throughout all of the chronological ages of history. The way in which space is arranged to create town plans, architecture and interior home design is significant because it reflects the attitudes, values and human behavior of mankind. For this reason, this chapter searches into the various ways in which mankind has used proxemics to design his living environment. Since man's chronological time on earth covers such a long era, one specific culture has been chosen for the purposes of this study—that culture is Greece. Only through a thorough knowledge of man's use of proxemics on a cross-cultural basis can one expect the student to project the best of the past into the designing of the habitat of the future.

Although this chapter does not present a case study as was done in Chapters III and IV, it does present a structural-model outline so that the educator might with greater facility encourage his students to engage in similar research. The following structural-model outline, applied to Greece, could also be used to analyze the habitats of Primitive Man, Mesopotamia, Egypt, Rome, the Middle-Ages, the Renaissance, the Twentieth Century and other cultures.
I. THE WHOLE SPACIAL FORM OF THE CULTURE
   a) general physical aspects of the whole culture
   cause and result of physical growth patterns

II. THE SEGMENTED SPACIAL FORM OF THE CULTURE
   a) specific examples of the physical aspects of the whole culture--
      i.e., the selection of a localized geographic area such as a town
   b) civic buildings--i.e., public shelters
   c) domestic buildings--i.e., home dwellings

III. VISUAL EXAMPLES OF THE WHOLE SPACIAL FORM
   city plans, the open space plan and landscape design of the whole
   geographic area, engineering feats as they interweave the area and
   so forth. These are examples of the macroscale.

IV. VISUAL EXAMPLES OF THE SEGMENTED SPACIAL FORM
   individual buildings, civic art, public squares and other examples
   of the micro or humanscale.

2. VERBAL CONTENT

I. GREECE AS A WHOLE SPACIAL FORM

   Around 1,000 B.C. at the time of the invasions of the Dorians
   and Ionians, the early history of Greek architecture and town-planning
   is very confusing. It is probable that most of the buildings were con-
   structed of timber and clay. Only here and there do foundations remain
   to enable us to reconstruct the dwellings. In these few remains of the
   ninth and tenth centuries B.C., one has already evidence of two dif-
   ferent ideas--primarily the long narrow rectangular house and the cir-
   cular hut.

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1All material for "Greece as a Whole Spacial Form" is accredited
to Talbot Hamlin from his book Architecture Through the Ages (New York:
In the sixth and seventh centuries A.D., it is probable that most of the towns were irregular in growth and in visual pattern. The only fixed feature was the open market place (agora). There was frequently a high fortified hill outside of the town's inhabited area and this was referred to as the acropolis. This site contained sanctuaries and temples. In the towns the only notable buildings were the temples. These occupied sites of traditional sanctity and stood enclosed in precincts of variable size and shape; but the streets and public buildings do not seem to have been designed either to emphasize or to isolate these temples.

Many Greek towns were not walled before the sixth century B.C. and many remained open until Hellenistic times: Sparta is the most familiar example; but it is not unique.

We can, however, form some kind of a picture of a Greek town a century after the Dorian invasion. In the center would rise the house of the chief, with walls of unburned brick and a roof either gabled and thatched or else flat and covered with turf. In front of it would be a porch made by continuing the side walls beyond the end wall. Close to this house would be grouped two or three minor buildings, the houses for servants and for the women. Around these would be grouped the houses or huts of the town, some rectangular and some round. These would be grouped around an open space, the original Greek agora. Close to the agora, but on the other side, would rise another megaron, the temple of the presiding deity of the town, distinguished from the chief's house only by the altar in front of it and by the temple door. Out of this crude beginning, duplicated hundreds of times on the mainland of Greece grew the glory of later Greek architecture.

Many reasons lie behind the extraordinary development of the
next five hundred years. The Greek had the advantages of elasticity of political make-up, a common language and common mythology. Also, city-state rivalry was a tremendous stimulus to intellectual and artistic progress. A spirit of inquiry prevailed—a spirit that questioned nature and never became satisfied with convention, so that the static progress-destroying culture of Egypt was never to be known in Greece. The Greek also had the ability to synthesize, to speculate, to create aesthetic patterns using all media.

To see the cold marble ruins of a Greek town today is not to understand Greece. For one must imagine gaily painted buildings, public pedestals carrying votive offerings, gentle winding pathways, small intimate treasury buildings and the whole as being embowered in trees and shrubs. Everywhere would be variety, public sculpture, gentle stairways bathed in sunlight; and yet the whole would be arranged, not in confusion, but in an order all the more effective because of its subtle informality. In the town agora one would find the same kind of subtle richness which would lead us off into the council chambers of the stao.

In Greece, most of the money went to building so that the amount of building was tremendously high in proportion to the actual population; and no matter how ill-gotten the wealth was obtained, its benefits flowed back to the welfare of all the citizens.

II. GREECE AS A SEGMENTED SPACIAL FORM

a) Specific examples of the physical aspects of the whole culture

A survey of two selected examples of specific Grecian towns may help the student to develop a feeling for the Greek town plan as a totality. The towns to be surveyed are Priene and Delphi.

All material for part a) "Specific examples of the physical aspects of the whole culture" is accredited to Talbot Hamlin from his book Architecture Through the Ages, pp. 131-137.
Priene:

Priene, in Asia Minor, is very well preserved and the qualities it displays must have been the qualities of all of the cities of the Hellenistic world. Priene had a population of from 3,000 to 5,000 people and about 500 small dwellings to house these people. This factor alone is perhaps the great lesson to be learned from Greek architecture. That is to say, the city was designed not for private but for public use, and every part of it was under the constant scrutiny of a citizenry brought up to be aware of the physical environment—alert, proud and concerned!

Everything in Priene was built on a small scale, and the streets were narrow. It was kept compact as a civic precinct. The scale of the Greek cities might be termed as "pedestrian"—this is the important clue to their city-planning. Priene was on a hill and looked down upon the less healthy land; that was an important principle of classical town-planning. Priene has walls that are typical of the military science of the Hellenistic Age. They follow defensible positions and enclose a large area never meant for habitation. Priene has one chief east-west street and the streets run exactly north-south and east-west. Finally, the city blocks are exactly the same size.

Delphi:

In the town-plan of Delphi, the precipitous slopes and rocky hills control the form of the town. The processional road carried the citizen from terrace to terrace by paths dictated by the mountain terrain. On the slopes, terrace walls supported shrines and temples and city treasuries as landmarks along the path—each form different from the next but harmonized by the general simplicity of the Greek forms. The theater filled a natural hollow and, however great the play, it must have been difficult to keep one's eye from wandering to the beauty beyond.
organic plan of Delphi is in complete contrast to the plan of Ephesus which is so carefully calculated, conscious of a sophisticated urban setting, its dominance over nature and a formality of design.

b) **Civic Buildings--i.e., public shelters**

Temples:

The ground plan for the temple was derived from the "megaron" of the Mycenean house, a rectangular hall with a frontal porch supported by columns. Prototypes for the capitals, both Doric and Ionic were furnished by Eastern Egypt and Assyria as well as Crete and Mycenae. The chief architectural ornaments used by the Greeks--the lotus, palmette, spiral and rosette were also taken from the East. However, after a period of experimentation, the Greek architect evolved something characteristically his own. A central hall (cella) was provided with a columned porch, practically always in front (pronaos) and sometimes at the back. Pilasters (antae) terminated the side walls of the cella. Rows of columns were placed all around to form a colonnade (peristyle).

The decorations were confined to certain portions, plain and ornamented surfaces alternating according to a fixed design. The roof of the temple was generally not flat but double pitched and made of wood. The triangular space at each end was closed by a wall and decorated with sculpture. The cella was completely walled in and was built as far as possible of uniform horizontal blocks. The entrance to the cella was through a large door facing the east side, and in most cases this was the only source of daylight in the interior. Windows were exceptional. The cult statue was generally placed at the western end of the cella, opposite the entrance.

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Gymnasia:

An important part of Greek life was the gymnasium where boys and men exercised and were trained. In Hellenistic times, the gymnasium regularly included an open athletic ground for such outdoor exercises as running, jumping and throwing, whereas wrestling and boxing, which required less space, were practiced in a partly enclosed structure called the "palaistra." It had rooms for baths, dressing, exercise, lectures and it might even include a library, gardens and a restaurant.

Treasures:

The remains of treasuries used to house public as well as private offerings have been found in a number of sanctuaries. Each community erected its own treasury, consisting generally of a small chamber about sixteen to twenty feet square with a portico in front. A number of these treasuries have been found at Delphi and Olympia.

Tholos:

Related to the temples are the circular buildings known as "tholoi," which consist of chambers with concentric rings of columns, sometimes combining the different orders. Examples of such structures have been found in the sanctuaries of Delphi, Olympia and Epidauros. The tholos in Athens served as a council chamber but the function of them elsewhere is uncertain.

Theaters:

The form of the Greek theater owes much to its origin—namely the choral dances associated with the worship of Dionysos (534 B.C.). The Greek theater regularly consisted of a large circular orchestra (dancing place) with an altar in its center and a semi-circular auditorium (theatron or viewplace) situated frequently on the slope of a hill. The stage was separated from the auditorium on either side by two passages
(paradoi) which gave access to the orchestra from the outside. At first the stage seems to have been level with the orchestra, but gradually it was raised and in time, stone structures took the place of the earlier wooden ones. The earliest extant Greek theater is that of Dionysos on the South slope of the Athenian Acropolis which dates from the fifth century B.C. One of the best preserved theaters is that at Epidauros erected about 350 B.C. Theaters of this general form have been found all over the Greek world; most of them belong to the Hellenistic period.

Stadia:

The Greek race courses (stadia) were, like the theaters, placed on the slope of a hill or in a valley to allow the natural inclines to be used as seats for the spectators. The slopes were elongated with ends rounded or squared. The length of the course varied from 600 to 700 feet. The oldest stadium in Greece is that of Olympia, remains of which have been found beneath the later structures. It was exactly a "stade," or 600 feet long, and was therefore called a "stadion."

c) Domestic Buildings—i.e., home dwellings

Little is known about private dwellings of the early Greek period; but the late fifth century B.C. gives a more concrete image. The excavations at Olynthos have revealed the foundations of a more than a hundred houses dating from the late fifth century B.C. Usually they are almost square in plan, one-storied, with an entrance leading into a court, sometimes with a portico and several living rooms, so arranged as to provide sunshine in the winter.

The houses were, as one might expect, simple and without ostenta-
tion, built generally around a courtyard with a colonnade usually on one

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4 All material for part c) "Domestic Buildings" is accredited to G. M. A. Richter from his book A Handbook of Greek Art, pp. 32-33.
side of the courtyard only. This colonnade flows across the width of the house and was used as a shaded outdoor living room or patio. From this patio, one entered into the central rooms of the house, usually three, a main bedroom, a living room and a kitchen. These houses were built of mud brick on stone foundations. Frequently stairs show the presence of a second story. Windows were generally placed high in the wall and a door faced the narrow streets. The most elaborate room seems to have been the living room which would often have a mosaic floor. It might be stressed that the most significant development was the creation of the interior room open to the sky, as distinct from an external yard on which the rooms of the house faced. Terra cotta bathtubs were often found in a room off the kitchen, but sanitary arrangements seem to have been of the crudest types. The walls of the houses were painted in plain colors with occasional use of different bands of color. The doors to these homes were made out of wood, two-winged with transverse boards, studded with metal nails, appliques and large rings serving as handles. The whole picture is one of ample comfort but of little luxury and emphasizing outdoor living.

3. VISUAL CONTENT

Part III of the structural-model outline is entitled: "Visual Examples of the Whole Spacial Form." Using Greece as the specific model for the outline, Part III visualizes Greek sanctuaries and town plans. Part IV entitled: "Visual Examples of the Segmented Spacial Form" visualizes private domestic houses and individual buildings and examples of the microscale.
Plan of the Acropolis of Athens

PART III VISUAL EXAMPLES OF THE WHOLE SPACIAL FORM

Fig. 88 GREECE AS A WHOLE SPACIAL FORM
Priene, plan of the central part (restored)

Priene, simplified ground plan

Fig. 89 GREECE AS A WHOLE SPACIAL FORM
Sanctuary of Zeus, Olympia. Restored view

Sanctuary of Zeus, Olympia. Plan

Fig. 90 GREECE AS A WHOLE SPACIAL FORM
Sanctuary of Apollo, Delphi—left, and to the right is the plan of the Upper City of Pergamom.

Fig. 91 GREECE AS A WHOLE SPACIAL FORM
Typical Greek Houses, from Olynthos (left) and Priene (right); Plans and Restored Views

Private Houses at Olynthos, late fifth or early fourth century B.C.

PART IV  VISUAL EXAMPLES OF THE SEGMENTED SPACIAL FORM

Fig. 92  GREECE AS A SEGMENTED SPACIAL FORM
The Theater of Epidaurus, 350 B.C.

Ground Plan of a Greek Temple

Fig. 93 GREECE AS A SEGMENTED SPACIAL FORM
Fig. 94 Rhodes--a kiosk with leisurely seats

Fig. 95 Crete--Floorscapes--interior of a doorway adjacent to the street as the external floorscape.

Pages 156-159 show examples of GREECE AS A SEGMENTED SPACIAL FORM. Microscale photos taken by the writer, Greece, 1971.
Fig. 96 Rhodes--The pleasure of peeking through small apertures

Fig. 97 Delphi--Everything is small and human. Objects can be seen, touched, smelled. The use of the half door goes back to ancient Greece.
Fig. 98 Crete--The intimacy of the small outdoor patio. Note how scale of door is "human" in size.

Fig. 99 Delphi--Stairs are set for a slow relaxed step. The rhythm: a short lift--up--two footsteps--a short lift--two footsteps--a short lift--etc.
Fig. 100 Crete--Controlled use of signs; and the signs are integrated with objects expressive of visual delight

Fig. 101 Crete--Landmark--doorknobs or other small objects make effective landmarks when one is walking
4. VISUAL PROJECTS VERBALIZED

Following are some suggestions for student projects that are related to the verbal content of the second section. These projects should help the student to develop an understanding of the human habitats of a variety of cultural eras. This understanding will enable him to select the best use of spacial form from the past and project it into the designing of the habitat of the future. The "Structural-Model" presented in the verbal synopsis could serve as the outline in many of the problems stated herein. The creative use of this outline rests with the ingenuity of the educator.

1. Using the structural-model outline suggested in the first section called "Verbal Synopsis" have the students research into the human habitat of the following cultural eras:

**Primitive Man:** Yorubs of Nigeria, Africa
Mbuti Pygmies of Africa
Bushmen of Africa
Cheyenne Indian of the United States
Mailu of New Guinea

**Mesopotamia:** Ur
Kalhu
Babylon
Tepe Gawra

**Egypt:** Hotep Sesostris (now called Kahur)
Thebes
Nekheb
El Lehun (the workmen's town)
Twentieth century Cairo

**Rome:** Old Rome, 600-200 B.C.
Hellenistic Rome 200-50 B.C.
Twentieth century Rome

**Greece:** Pergamom
Ephesus
Ancient Greece up to the sixth century B.C.
Hellenistic Greece--the sixth century B.C.
The smaller Greek Islands
Crete
Rhodes
Mycenean Greece

**Middle Ages:** Towns of the fifteenth and sixteenth century
Florence--fifteenth century
Paris—fifteenth century
Growth of the Burg (borough, bourg, borgo)
Origin of the Markplatz (marché aux poissons, campo di fiori)
Origin and growth of the walls as fortresses
Civic buildings such as: cathedrals
mendicant orders
hospitals
universities

The Renaissance: Italian Renaissance architecture
Vitruvian theories of architectural construction
The Baroque in architecture
Pisa--the first attempt at city planning
The development of the Dome
Civic buildings of the sixteenth century such as:
palaces
orphanages
monuments

Modern Times: Domestic habitats as planned for the following:
The federal housing acts
Swedish new towns
Russian new towns
British new towns
American new towns
Tapiola, Finland's new town
Radburn, new town of New Jersey
Greenbelt of Maryland
Columbia of Maryland
Reston of Virginia
Williamsburg--designed by the English colonists
Broadacre--Frank L. Wright
Ville Radieuse--Le Corbusier
Garden City--Ebenezer Howard
American civic buildings designed between 1960-1972 such as:
museums
campuses
housing projects
penal institutions
shopping centers
government buildings such as
post offices and employment offices

2. Create a new town based on the floor plan of the sanctuary of Zeus.

3. Using contemporary architecture, design a modern civic center based on the floor plan of the acropolis of Athens. Construct a three dimensional model of the civic center. The five buildings of the acropolis are to house: 1) art museum, 2) church, 3) auditorium, 4) civic offices, and 5) court house.

4. Research into the area of the interior design of domestic housing of a specific cultural era. Make water color renderings of these interiors as you would imagine them to be in the time of their glory. Do the same with public interiors.
5. Collect visual examples of both Greek domestic architecture of the Hellenistic era and contemporary American domestic architecture. Then, write a paper comparing or contrasting the two periods of architecture. Try the same problem using different cultural eras.

6. Visually compare Greek Hellenistic architecture with contemporary American architecture in terms of the microscale, humanscale and ratio, i.e., the proportion between man and his buildings.

7. Search through visual material about Greece from ancient times to modern times, and make a xerox collection of the design elements that to you seem to give Greek architecture a sense of humanness and warmth.

8. Have the students compile a collection of sketches of elements of Greek architecture (or another cultural era) that exist in their home town or city. Examples: the columns of the bank, the grid-pattern of the streets, greek sculpture, the inner patio, white-washed stucco, a temple on a cliff, a small round house (tholos), an outside arcade (stao) and so forth.
Fig. 102 A new town based on the floor plan of the sanctuary of Zeus. The original sanctuary was located in Olympia, Greece.
Fig. 103 Greek classical architecture compared with modern twentieth century architecture according to the function of the building.
320 BC. CARVED ENTABLATURE FROM Epidaurus

320 BC. From Epidaurus

320 BC. From Epidaurus

Fluted columns from Early 4th C BC.

Floor Mosaic From Delphi

Round Stairs of the Tholos of Delphi

SPLIT-LEVEL OF THE ERECHTHEUM— Acropolis of Athens 405 BC.

Fig. 10: A student's sketches of elements of classical Greek architecture that express warmth and intimacy.
CHAPTER VI

SMALL URBAN SPACES

1. VERBAL SYNOPSIS

This chapter investigates the potential for design inherent in the small urban area. It defines the idiom "vest pocket park" and presents a rationale for its use. Next, it examines the principle design elements that seem to occur consistently in the successful designing of small urban spaces; it proceeds to discuss the types of spaces that could be converted into amenable living areas. It concludes with an exploration of some of the basic problems involved in the designing of small urban spaces.

2. VERBAL CONTENT

A Definition of Small Urban Spaces--(Vest Pocket Parks):

The idiom "vest pocket parks" refers to small urban spaces. Both phrases bear identical connotations. Both phrases refer to the outdoor open areas geographically located either in the central business district (referred to as the "C.B.D." by city planners), or else located in the zone of transit. The C.B.D. is the core or heart of the city; the zone of transit is the residential area located between the C. B. D. and the residential area of the middle class. This zone of transit is usually a blight area, inhabited by first generation immigrants, blacks and lower class workingmen. It often has factories and service industries interwoven throughout the area. ¹

The term "small urban spaces" (or vest pocket parks) does NOT refer to the public square or civic plaza, nor does it address itself to the large open city park. In its undesignated form it is thought of as the small unused lot located in a neighborhood. It might be a deserted parking lot, the greenery around housing projects, or the empty space left by a demolished building. Often these places are the target areas for vandalism, muggings and discarded trash. On the other hand, when it is well-designed, the small urban space might be thought of as an outdoor living room shared by the members of the local community.

A Rationale for the Designing of Small Urban Spaces:

Lewis Mumford, in explaining the history of American use of open space, states that in the nineteenth century open space was treated as a hygienic and sanitary green which served as a place of refuge away from the congestion of the city. It was not thought of in terms of its accessibility, its frequency of use or its social function. Open spaces were used by the upper class on holidays and weekends and no effort was made to provide intimate open spaces in each neighborhood.\(^2\)

Unfortunately, the limited attitudes associated with the designing of parks in the nineteenth century have not subsided in our own time to any great extent. William H. Whyte says that many park officials of today do not think much of vest pocket parks. They insist that the spaces are too small to be useful, too expensive to purchase, too difficult to maintain and are a prey to vandalism.\(^3\)

Whyte describes present day urban spaces, supposedly designed for

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school children, as looking like prison compounds. They appear to be designed for janitors and administrators not for children. Everything is geared for order, cleanliness and efficiency. There is the inevitable expanse of asphalt, the cyclone fences, the standardized swings and steel climbing bars, the square shape of the lot, and the absence of nature. Things children love cease to exist. There are no trees, no animals are allowed; there is no dirt, no objects to build with, nothing to kindle the imagination.\(^4\)

Lewis Mumford says that in our modern world the condition of urban spaces has deteriorated so rapidly that the terms "park" and "field" have even taken on new meanings. Park often means a desert of asphalt designed as a temporary storage place for automobiles (parking lot). Field means another kind of artificial desert, a barren area planted with great concrete strips, vibrating with noise, dedicated to the landing of airplanes (air field).\(^5\)

Mumford says that small urban spaces well designed could entice the city dweller to stay home and enjoy life. Instead he hits the highway at high speeds and travels miles to enjoy the outdoors only to arrive at a spot where a thousand other motorists have already converged and spoiled the place that he had hoped to enjoy.\(^6\)

It appears from the above observations that a well-designed small urban space could increase the quality of life by providing its citizens with a place for social functions, by aborting the stress created by long-distance driving, and by saving lives that might be lost on the freeway.

\(^4\)Whyte, The Last Landscape, pp. 300-305.
\(^5\)Mumford, Highway and City, p. 225.
\(^6\)Mumford, Highway and City, p. 228.
Principle Design Elements Conducive to the Successful Use of Small Urban Spaces:

Jane Jacobs states in her book *The Death and Life of Great American Cities* that urban areas intensely used in a community tend to have three elements in their design that reappear consistently in every successful use of outdoor space. These three elements are: a) the functional use of space, b) points of reference within the space, and c) enclosure of the space. Following is an explanation of these three elements. 7

a) The functional use of space

Functionalism is related to the variety of reasons for which people go to visit neighborhood urban spaces. Even the same person comes for different reasons at different times. He may go to loiter and relax. He may go to play, to read or to work. He may go to show off a fancy new garment, to find new friends, to keep a rendez-vous, to hear concert music or to see an outdoor art exhibit. He may go to get closer to nature, to smell fresh air; but almost always he will go to be entertained by the sight of other people.

b) Points of reference within the space

Well designed urban spaces typically have a place somewhere within them commonly understood by its citizens as being the center, the climax, or the point of reference. This central place might be a place to wash bikes, a good brook to fish in, a carnival with its varied equipment, an open field to fly a kite, a rink to ice skate on in the winter, a piece of sculpture, or monkeys in a cage. Point of reference refers

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7Jane Jacobs, *The Death and Life of Great American Cities* (New York: Alfred A. Knopf, Inc.), p. 103. The three elements following this footnote are abstracted from pp. 103-111.
to the physical objects located in the specialized area; whereas functional use of space refers to the activity that one wishes to engage in.

c) Enclosure

Although buildings should not cut sun from an open space, the presence of buildings around an area is important in design. They enclose it. They make a definite shape out of the space so that it appears as an important event in the city scene, a positive feature, rather than a non-accountable left over. Instead of being attracted by infinite left-overs of land oozing around buildings, people behave as if repelled by them. They even cross streets as they confront them, a phenomenon that can be watched wherever a housing project, with its large green area, breaks into a busy street. At that point, pedestrians cross the street!

In summary, three elements needed to make a small open space successful are a reason for using the space, the facilities available to sustain this reason and a feeling that the space has boundaries, or enclosure, that differentiate it from the rest of the city. Following is a glimpse of some of the types of urban spaces that might be designed with these goals in view.

**Types of Small Urban Spaces:**

a) Public housing project areas

The large open area of green grass located around most housing projects is a wasteland. Rather than play in these large barren lots, children seek out places where intense activity is going on. They prefer playing in the small spaces between houses, in the alleys of the streets. These large areas might be broken up into small enclosures with different activities and points of interest located in each enclosure. One
enclosure might be for "tiny-tots," another for teen-age activities, and so forth.  

b) Roof-tops

Many adjoining inner-city houses have flat roofs that might be converted into roof gardens. In many metropolitan city blocks, roofs have a contiguous area eighty-five feet wide and a block long. Many cities prohibit the use of this space for safety reasons; however, where existing parapets are high enough to provide protection or if new safety barriers could be constructed, it would be possible to build safe recreation. In some cases, structural strengthening of the roof might be necessary. Think of the potential! Roof gardens with swimming pools and deck tennis, sauna baths and sun decks, perhaps even meandering pathways from one roof to the next.  

C) Corner lots and vacant lots

Corner lots, or vacant lots located between two buildings, are usually about sixty feet long and fifteen feet wide. They are usually eyesores collecting industrial trash, if located near industry, or collecting household trash if located in residential areas. Frequently, the land is the result of slum housing torn down. Such sites could be designed as basketball courts, skating rinks, tennis courts, neighborhood flower or vegetable gardens, sitting areas for the elderly or "tot-lots" for younger children. They could also be designed for multi-purpose use serving two or more of the functions mentioned here.  

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8 Whyte, The Last Landscape, pp. 295-296.  
d) A street blocked off for pedestrian use

A street can serve as a small urban space in two different ways:
1) it can be permanently blocked off or, 2) it can be temporarily blocked off.

1) Permanently blocked streets

When a city in the C.B.D. is permanently blocked off from traffic the sidewalks can be widened up to about thirty-five feet on the average street. Such a walkway could be reconstructed using the technique of the microscale as explained in Chapter I. The sidewalk could serve as an exhibition area showing off paintings and sculptures. Another possibility is that of eliminating the sidewalk altogether and replacing it with a variety of wandering foot-levels as the pedestrian wanders through the area. This type of planning is referred to as a "park street."

2) Temporarily blocked streets

Streets can be closed for a certain span of time for special circumstances--perhaps for a winter carnival or for a spring dance. Portable and easily stored street furniture should be readily available for such events. To identify its new use during its hours of operation, the walking areas could be given a special texture or color. This would help to direct the flow of traffic.¹¹

e) A street and lot combined¹²

A street blocked off from traffic and combined with an empty lot is a combination seldom used but offers much potential to the designer with imagination. Festive one-day-events could make excellent use of

¹¹Simon Breines, "Planning for Pedestrians," in Small Urban Spaces, pp. 67-68. This footnote refers to both 1) and 2) above.

¹²U. S. Superintendent of Documents, From Sea to Shining Sea (The President's Council on Recreation and Natural Beauty, Washington: Government Printing Office, 1968), pp. 34-60. This footnote refers to letters e through j above.
this combination.

f) Bridges over freeways

A bridge over a freeway could serve not only as a way of moving pedestrians from one side of the street to the other; but also as a place to linger and to take a coffee break. It might have an observation deck, a restroom or a weather shelter.

g) Waterfront sites

Many old industrial waterfront spaces have fallen into disuse, are blighted, poorly maintained, afflicted by water pollution, and cut off from pedestrian access by buildings, highways and railroads. Human access for leisurely observations should be made easy and attractive. Where waterfronts are devoted to through transportation, the street or rail arteries should avoid the water's edge. Ways to turn the waterfront into an amenable area are discussed in Chapter I.

h) Existing vest pocket areas

Often small urban parks already in existence are not fully used owing to poor maintenance, worn-out equipment, concern over personal safety, unattractive design and lack of supervised recreation. Improving night lighting alone can result in greatly increased use of the space. A U. S. Department of Commerce study indicates that better lighting in playgrounds in some areas of New York City decreased vandalism by more than eighty percent.

i) New parks in old neighborhoods

In most cities parks and playgrounds are in shortest supply in old inner-city neighborhoods where they are needed the most. The Open Space Land Program of 1965 is helping many cities such as Toledo, Ohio to acquire and clear off land in built up areas where no open spaces are in existence.
j) Commercial and industrial sites

Business people are frequently willing to provide the part-time use of industrial land. For example, a parking lot can be used in the evening as a basketball court. Concerned companies will sometimes pay for the equipment, maintenance and operating costs. In many industrial zones, if observation of industrial processes could be surveyed from observation decks, it would be an educational experience for young people.

Basic Problems Involved in the Designing of Small Urban Spaces:

Obviously, concrete and successful results in the designing of the foregoing types of small urban spaces involve a multitude of problems. The educator interested in teaching concepts about the designing of these areas should be alerted to some of the basic problems involved; these include: a) acquiring the space, b) accessibility of the space, c) how to involve the community in the planning of the space, d) how to design space for playground use and, e) how to maintain and preserve the space.

a) Acquiring land

Cost is usually offered as the reason for limiting urban space acquisition in the C. B. D. Among some park administrators a myth has arisen to the effect that three acres is the minimum feasible size for an urban park. Acquisition of a three acre site in the C. B. D. is nearly impossible; and therefore, few spaces have been acquired. In reality, a lot fifty by one hundred feet is sufficient for a vest pocket park. It is the quality of the design of the area that is important, not the quantity of the space.13

A great deal of metropolitan available open land space now consists of small parcels of land, many of them junk piles, garbage heaps, and slum backyards. Thousands of these plots, owned by the city or privately held, exist right where the need for designed urban space is critical. These useless spaces can be cleared, rented for temporary use or purchased outright. The cost of acquiring and developing 200 parks would be 7.5 million dollars. Measured against the capital budget of the Parks Department, averaging 25 million per year, the outlay would be less than 10 percent of the entire capital budget package.  

b) Accessibility

Open spaces should be linked together by a walking path so that one might walk from one open space to the other with great ease. The urban spaces should be located in an area that is convenient to office workers and to the shopper. This means locating the spaces in areas of high density.

c) Community involvement

Members of the community could become involved in the open space project in the following ways. Unemployed local residents could be trained and employed in the construction of the parks. Children could help to design the physical part of the park or playground. Sculptors and local artists could be utilized not only to help design the area, but also to carry on recreational programs after the park is built. Vest pocket parks should be linked to other community facilities such as the library, child-care centers and cafes. In low income neighborhoods,  

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14 Thomas P. Hoving, "Think Big About Small Parks," in Small Urban Spaces, pp. 82-85.

community members should not be expected to maintain the park on a voluntary basis. Street cleaning has connotations of all the menial occupations to which minority and low income groups are trying to escape. After developing a park, the group should move on to the next project with funds set aside by the city for maintenance purposes.  

d) Designing space for playground use

Two ways of designing the small urban space for use by children are referred to as: 1) adventure playgrounds and, 2) modular system playgrounds.

1) Adventure playgrounds:

The move for adventure playgrounds in England rose as a constructive protest against the sterile asphalt playgrounds available to children. The adventure playgrounds are developed and maintained by community members. The essence of the playground is that it is an area where children can do the things that they have a deep unconscious urge to do. For this, they have an ample supply of tools and raw materials, they can dig caves, build tree houses, make cooking fires or play in junk heaps without being instilled with the fears and dangers involved in doing these things.  

2) Modular systems:

The modular system is a repeat of the same unit of construction so as to create a grouping of forms for the child to play on. Through this system, standard play equipment such as slides and swings become single experiences so that the play becomes continuous and linked. The


system can provide for a variety of needs and ranges of ages within the community. When the time comes to remove the modular system because of redevelopment or sales of lots, then the pieces can be dismantled and re-located in another vacant lot. Following is an example of a modular system in operation.\textsuperscript{17}

\begin{center}

diagram
\end{center}

e) Maintenance and preservation

Daily cleaning of the parks is essential and damage must be repaired immediately. Damage is part of the pressure that leads to the widespread use of unimaginative and fixed play equipment in parks. However, by choosing simple and expendable items, vest pocket parks can be both imaginative and inexpensive.\textsuperscript{18}

\textsuperscript{17}Paul Friedburg, "Systems for Play," in \textit{Small Urban Spaces}, pp. 82-85.

The large open area of green grass located around most housing projects is wasteland. It could be broken up into microscale areas and given a functional use with points of reference.

This is the type of vacant lot that could be transformed into a community outdoor living-room.
Fig. 107

Paley park in New York City offers an hour of relief for nearby office workers.

Fig. 108

An example of a small urban space that was once a trash-collecting vacant lot.
Many inner-city apartments have flat roofs that could be transformed into a pedestrian system of connecting functional spaces.

A modular system used as outside shelter. The individual units could be moved to a different location when no longer needed. The units could be joined together in different sizes and patterns to fulfill individual needs.
Imaginary problems such as this one can be given to the student to solve.

Above--aerial view of the slum-lot
Below--perspective view of same lot
Almost all of the following suggestions for urban design could be extended to the actual designing and rebuilding of the urban area. One idea might be to split the group of students into task-force groups. Each group could concentrate on one of the problems presented in the verbal content of this chapter. Such "reality-projects" as these might follow up an introductory course in environmental education and be called "Community Environmental Projects." As a word of precaution, these "reality-projects" should not be attempted until the student has a fundamental knowledge of visual environmental education, nor should they be attempted without thorough investigation--without the thoughts and visual plans on paper.

1. Using the problem given in figure 111, redesign the two open lots, the alley and the oil-slick beach. The four buildings may be redesigned but their function and basic structure must remain unchanged.

2. Design a modular system for a children's playground located on school territory.

3. Design an adventure playground.

4. Design inexpensive and expendable playground equipment and park furniture for a local school.

5. Acquire a small urban space and design it for a specific use such as a "tot-lot" or a teen-age lot.

6. As a class project, give a functional use to an existing park that is not used very much.

7. Find ways to involve community members into the actual designing of a small urban area. Remember that the park must reflect the needs and desires of the local community for whom it is designed.

8. Plan a park system using the roof-tops of a C. B. D. of high density.

9. Place a piece of tracing paper on top of a map of a local city; and then, plan a system of small urban spaces linked together by a pedestrian walkway.

10. Draw an aerial view of one of the busiest streets in the city. Redesign the street for use for a specific occasion such as a music festival, spring dance or "celebrate life" day. Assume that the street can be
closed down for one day.

11. Make a flow chart of space usage within a given children's park; also make a conversation chart.

12. Study the vehicle traffic patterns and pedestrian traffic patterns in the C. B. D. of a local city through the use of flow charts. From this study, find out when it would be the most feasible time to close the street for a one-day event.

13. Apply the "Structural Model for Environmental Analysis" presented in Chapter III to the study of a small urban space. Redesign the space according to the results of this analysis.

14. Using a very small open area, design an observation deck in an industrial area. Plan for a place for elderly people to sit and watch as well as the young.

15. Design ways in which a small urban area might be enclosed other than by the walls of buildings.

16. Design a set of portable screen (walls) for use as a means of traffic control for a park that is used heavily. The screens must be easy to store when not in use.
Two views of a roof-park design.

The small urgan area should be in a highly crystallized form such as this figure portrays before a "reality-project" is attempted.
Shown here are three diversified solutions to the problem presented in figure 111.
These two aerial views visualize fountain-pools to be used as the point of reference in the designing of small urban spaces.
These two aerial views visualize small urban spaces designed for office workers in a high density area.
CHAPTER VII

SOLVING CITY PROBLEMS

1. VERBAL SYNOPSIS

Chapter VI attempted to find a diversity of solutions to one major problem occurring in today's city—that of the need for small urban areas. However, there are many additional urban problems of a visual and physical nature of equal importance. This chapter explores some of these problems and suggests ways of solving them. Four problems evoked are: A) visual pollution, B) the inner-city congestion created by automobiles, C) housing the nation's minority groups, and D) creating living environments for increasing numbers of people.

Each one of these four areas is investigated by first presenting factual information about the problem, and then suggesting alternate and diversified solutions to the problem.

2. VERBAL CONTENT

A) VISUAL POLLUTION:

The Problem:

Visual pollution means the visual noise created by the disorder and lack of selection within the physical environment. It refers to the honky-tonk landscape consisting of cluttered neon signs, to the asphalt jungle, and to buildings constructed without concern for neighboring architecture. This blight is caused by many factors such as 1) uncontrolled billboard use, 2) littering, 3) abandoned autos, 4) uncontrolled signs, 5) apathetic attitudes, and 6) lack of environmental laws.
1) Uncontrolled billboards:

Some of the uncontrolled trends in billboard use include glaring neon letters, spotlight beams, aerial advertising, billboard on car tops, boats and busses, moving signs and shiny aluminum foil that attracts car-lights at night but distracts the driver from the road. This blight trend continues in spite of the fact that carefully engineered studies have shown that highways with billboards experience three times as many auto accidents as do highways without billboards.¹

Solutions

a) All fifty states might follow the example set by the state of Vermont, which recently passed the stiffest measure proposed anywhere. All billboards are prohibited, except premise signs, and even the premise signs are regulated in size and shape.²

b) Federal pressure groups must insist upon more stringent Federal billboard acts than the Highway Beautification Act of 1965. That act called for regulation of billboards by the states within 660 feet on either side of the highway. However, one clause permitted states to exempt commercial areas from the regulations. A second clause stated that the Federal government must pay for seventy-five percent of the cost of taking the billboards down. This meant that the 899,000 billboards subject to removal would require 558 million dollars of Federal funds. Needless to say, the act was a failure catering to the whims of the Outdoor Advertising Council.³


²Whyte, The Last Landscape, p. 343.

³Whyte, The Last Landscape, pp. 341-343.
c) Youngsters must be made sensitive to the visual blight around them through environmental design courses taught in the schools. Only by developing their vision as a mode of perception will youngsters grow up to be aware of the need to reject the visual blight around them.
d) Aware citizens might boycott commercial brands that are displayed on the billboards, and purchase only those brands that are not displayed.

2) Littering:

Not only is littering in cities a visual annoyance, unsanitary, and a safety hazard, it is also an expensive habit. It costs the nation's taxpayers nearly one-half billion dollars a year.¹

Solutions:
a) Public agencies and business firms could provide attractive and frequently emptied litter baskets in the community. These should be sufficient in number and easily located.
b) Public and private agencies should establish "standards of maintenance." Such maintenance would take care of litter created by seasonal changes such as tree trimming, leaf sweeping and dirty snow removal. This "standard of maintenance" would apply to such areas as bus stops, shopping centers, theaters and other public areas.
c) Local ordinances and state laws could adopt and enforce reasonable penalties for littering in public places. A one dollar fine is reasonable; a fifty dollar fine means that the law will not be enforced.
d) When owners of yards and vacant lots fail to clean up their property, the city's government could do the clean up job and add the cost to the owner's tax bill.
e) Scientific researching into rapid processes of disintegration

of materials might well produce new solutions to the problem.

3) Abandoned autos:

Many cars each year are abandoned on the roads by their last owners. New York and Philadelphia both report about twenty-seven thousand cars abandoned each year in each city. Whether abandoned or accumulated in auto junkyards, these vehicles are unsightly.

Solutions:

a) Junkyards could be located in areas away from dense population and screened off from public view.

b) A fee could be added to the original cost of the automobile to pay for its recycling when it is no longer usable.

c) The trade-in system should be continued and supported.

d) Methods of tracing down ownership of abandoned cars could be improved upon through the improvement of auto title laws.

e) The authority of public agencies to remove abandoned vehicles needs to be clarified in most states.

4) Uncontrolled signs:

Both architecture and letter get lost in the unplanned use of signs. Small business and industry have "wall-papered the world" with signs. This clutter is so bad that cities cannot control official traffic signs; they are overpowered by nonsensical commercial trash. Secondly, disorderly signs induce psychological strain and stress, thereby encouraging auto accidents when one is driving. Third, this blight is creating a mono-visual culture from coast to coast, resulting in a mundane landscape. A blight strip in Arizona is no different from a

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blight strip in New England--MacDonald's hamburger, Texaco gas, and Kentucky fried chicken signs follow the driver from coast to coast.6

**Solutions:**
a) The cities should endorse ordinances that control the size, shape, color and placement of signs.
b) The signs should be so designed that there is a unity of form and a minimum use of the written word. Visual symbols are preferable to words because vision is an international language; words are not. The designer might explore the symbols used during the Middle Ages, for example--a shoe might be the sign of a shoe repair shop.
c) Signs should be designed for pedestrian use on the microscale level rather than for traffic speeding by at eighty miles per hour. An exception to this would be food, fuel and emergency information needed on the freeways. All of this information would be grouped together on one very large sign executed in a simple but bold style and legible from many miles away.

5) Apathetic attitudes:

The apathetic attitudes held by many Americans is reflected in our value system as a whole. For example, our present level of government spending in the pollution control area is a joke! All fifty states combined spend less than one billion dollars a year for environmental protection. America's sense of priorities is wrong. Tax dollars are being spent on war destruction rather than on peaceful construction of the physical and visual environment.7

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Solutions:

a) Stop war and spend the money designing amenable environments.

b) Introduce the area of axiology into the school curriculum. Children have to be taught how to think about values, how to measure them, how to clarify them and how to apply them to life situations.

6) Lack of environmental laws:

In the United States we have a "public nuisance law" which means that if your neighbor dumps coal on your front lawn, you can sue him. However, no individual can sue unless he has suffered harm different from that suffered by other members of the public. Therefore, if everybody in the neighborhood wakes up with a ton of coal on his front lawn, nobody can sue! This rule has been faithfully followed since it was inaugurated by an English judge in 1536. One can surmise from this tradition that every citizen does not have a right to environmental quality.8

Solutions:

Paradoxically to the foregoing, the right of the individual in relation to his environment is founded in Roman Law. In the Roman Empire, a legal theory known as the "Public Thrust" assured the citizens that certain properties such as the rivers, the seashore and the air were held by government in trusteeship for the free and unimpeded use of the general public. For example, the shore was not owned by individuals; it was the property of the Roman people. Perhaps the citizens of the United States should adopt the Roman Law to their own needs rather than abide by the English law. As a result, industry could not legally litter your yard and lungs by "dumping coal in your yard."9

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The Inner-City Congestion Created by Automobiles:

The Problem:

Anyone who drives a car in a city is aware of the problems created by an over-population of automobiles: there is no place to park one's car when one has arrived at his destination. Traffic signals are confusing and difficult to read. The air pollution and visual pollution creates nervous strain and a feeling of nausea. The roads themselves seem to split up the heart of the city into shattered segments so that there is no "sense of place." Pedestrians have a difficult time dodging traffic and finding a system of paths to follow. Freeway lanes are so numerous that it is easy to miss one's turn-off from the freeway. This, then, is the nature of the problem created by the automobile—not to mention the whole realm of loss of lives through automobile accidents.

Solutions:

A) Mass transportation will have to be revived in the near future. Many people who live around or within the city would be eager to take mass transportation into the city and leave the car at home except that in most cities either mass transit does not exist, or if it does it is antiquated. In order to entice people away from their private auto, mass transportation must be rapid, frequent, comfortable, inexpensive, make good connections, and a seat must be assured to every passenger.

Victor Gruen has designed a plan wherein when traveling on a trip over thirty miles the citizen would use his own car, between thirty and five miles he would use rapid transit systems, between five and two miles he would use a city microbus and under one mile he would walk either on foot or on slow moving sidewalks.\(^{10}\)

b) The C. B. D. should be blocked off for pedestrian use only. According to Lewis Mumford, people located within a small area can move faster on foot than in automobiles. With the automobiles completely eliminated, the C. B. D. could be completely redesigned on the microscale level.\textsuperscript{11}

c) Traffic could be physically separated from the pedestrian. For example, a system of underground roads for the handling of service traffic within the heart of the city might be constructed. These underground roads would connect with loading and storage facilities in the basement of the buildings. Also, bridges and tunnels could help the pedestrian to get from point to point.\textsuperscript{12}

C) Housing the Nation's Minority Groups:

The Problem:

In order to comprehend the problems involved in the housing of the nation's minority groups, one must first have an understanding of the history of housing the nation's poor and suppressed. An understanding of the twentieth century approach to the handling of the social problems involved is also crucial. Only then could one possibly understand why alternate solutions must be sought to replace the rampant growth of vertical housing.

The history of housing the nation's poor and suppressed:

Lewis Mumford states that in the 1840's in the midst of New York's cholera epidemic, the health commissioner noted that the highest incidence of the plague occurred in the tenant quarters of the poor. That diagnosis led to the efforts of the first "model tenement" built in 1855. The rooms built were dark and unlighted. A model tenement design


\textsuperscript{12}Gruen, "New Forms," p. 198.
innovated in 1879 brought forth the "railroad" flats; a tenement so
called because one room formed the corridor of the next. These flats
had little light, air or privacy.\(^\text{13}\)

According to Charles Abrams, the mid 1930's produced some well-
defined theories about housing, some of which were carried over from
England, and other theories were organized in our own Congress. This
theory (collectively speaking) is well summarized by the following quo-
tation:

The new unit built should be very big and self-contained so as to
immunize itself from surrounding slums. The dwelling units should
be rented to the poor who cannot afford their own homes and would
be better off as tenants of a public over-seer. When a families' income goes up, the family should be asked to go elsewhere. Pro-
jects should be built to minimal standards and at limited cost per
room. Otherwise, they would be too good for the poor and would
compete with private enterprise. The projects should be owned per-
petually by public agencies; only the public agent can deal with
the problems of the poor and keep them from putting coals in their
bathtubs, and keep them prompt in their rent payments as well as
clean and well-behaved.\(^\text{14}\)

In describing the housing for the poor people of the twentieth
century, it is William H. Whyte's observation that city-planners tend
to accept as axiomatic the view that a large city master-plan produces
a far better result than a host of small plans. As a result, the city-
planner hands over to the architect a plan wherein the key decisions
are made for him before he even begins to design. There is a predestina-
tion to the design. It has already been agreed upon that the ideal
neighborhood is served by one elementary school, that the building shall

\(^\text{13}\)Lewis Mumford, From the Ground Up (New York: Harcourt, Brace

\(^\text{14}\)Charles Abrams, "Housing Policy," in Shaping an Urban Environ-
not give the original source of this quotation.
be thirteen stories high, and that the superblock plan will be used. \(^{15}\)

Paul and Percival Goodman state that the money available for housing projects is always spent on appliances and bathtubs rather than on special arrangements or variety of plan. The uniformity, the Goodmans say, is hopeless. This uniformity is not the value system of the tenants. Whose values are expressed? Do projects simply echo the sterile value-systems of all America? \(^{16}\)

The twentieth century approach to the handling of social problems:

Up to this point, the physical aspects of the vertical city have been explored; but the social problems created by vertical cities are equally significant. Following are some of the ways in which vertical cities fail to help minority groups— that is, the poor and the suppressed: 1) they replace slums with slums, 2) they displace people instead of re-locating them, 3) they ignore the need for a local economic base, 4) they cut off people from the life of the city, and 5) they symbolize deviant behavior.

1) Replace slums with slums:

Carl Dyers notes that we have built low-income projects that become worse centers of delinquency than the slums which they were supposed to replace; projects that are marvels of dullness and regimentation sealed against the vitality of life. \(^{17}\)

Mumford states that city-planners have treated the shortage of


low income housing as a disease that can be cured by segregating the sufferers in an isolation ward, and their high-density building has now created a new pattern of municipal congestion more widespread than the original slum pattern. 18

2) "Displace" not "relocate" people:

When the renewal of an urban area displaces people, the new buildings erected on site do not contain the same tenants; most of the former tenants move elsewhere generally further away from the city's center. Leonard Duhl gives some statistics on this viewpoint. In most cities, less than ten percent of those evacuated were relocated in public housing. Contract rates went up twelve to twenty dollars per month. The population density of each room did not change. These estimates suggest that the relocated families achieved only marginal improvement in their housing at the cost of higher rates. 19

3) The need for a stable economic base:

Oscar Steiner says that it is the revenue-producing resources that makes projects able to subsist, and that provision must be made for an enduring economic stability. To neglect the economic issue is to ask for a generative cycle of welfare. 20

4) Cut off citizens from the life of the city:

The projects are cut off from life. They are constructed like islands insulated from the delights of stores, from variety, from specialized services. Redevelopers have planned for the highway driver rather

18 Mumford, From the Ground Up, p. 420.

19 Leonard Duhl, The Urban Condition (New York: Basic Books, Inc. 1963), p. 120.

than for the pedestrian. There are no stores in the heart of the project, not even a vending machine in the basement. There is little opportunity for social intercourse.

5) Symbolizes deviant behavior:

Nathan Glazer observes that public housing is often marked off from other housing and stamped as "the jungle." Isolated architecture is easily symbolized as isolated or deviant behavior; the two become symbiotic. Vertical housing is a symbol of the poor. Even the word "housing" constitutes a continuing humiliating reminder that the occupants are wards of the state. Also, the strict administration constantly reminds one that he is in an institution not a residence.\(^2\)

In summary, housing projects for minority groups seem to have brought more problems into the city than they have solved. In addition to its inability to satisfy the physical needs of its inhabitants, the vertical city, due to its massive structure, casts cold shadows on neighboring living areas overpowering and ruining the microscale as well as cutting off the warm sun. If vertical housing is not the answer to the problem of housing the nation's minority groups--what is?

Solutions:

a) City-planners could utilize the land located between the C. B. D. and suburbia in an area usually defined by its industry, vacant lots and visual blight. In other words, the land located between congestion and sprawl, the zone of transit, needs to be rediscovered and redesigned. Presently, this area is almost completely ignored.

b) Designers should be encouraged to accept "hardship terrain" as a

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creative challenge rather than insisting upon flat terrain. Odd-shaped lots, steep lots, rocky lots located in the C. B. D. can be creatively designed using modern technology.

c) The federal government could pay for single family homes in suburbia. This would bring minority groups right into the white upper class community under government protection.

d) New housing could be built into old neighborhoods and older housing could be preserved. Any projects that are built would be no higher than four stories in height and small in scale and size.

e) Home ownership is not a panacea for minority problems but it does free the family from dependence on a landlord and gives the poor family a feeling of pride in ownership. Charles Abrams says that if the carrying costs of ownership are equal to the rent, the risk in purchasing is no greater to the mortgage holder than it would be to the owner. 22

f) Jane Jacobs has initiated the idea of a guaranteed rent system. It is a means of introducing a new construction gradually instead of cataclysmically, and it is a means of introducing new construction as an ingredient of neighborhood diversity instead of as standardization. These guaranteed rent buildings would be of different sizes and shapes. To induce private owners to erect these buildings in neighborhoods where they are needed to replace worn out buildings or to augment the supply of dwellings, a government agency would be created called the office of dwelling subsidies (the ODS). The ODS would guarantee to the builder financing for construction providing that the builder construct his buildings in a designated minority group location. 23

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One can summarize by the above suggestions that there are many diversified solutions to the problem of housing minority groups. Vertical housing is not the answer, and yet it has been accepted in the twentieth century as the absolute and only solution.

Not only is the problem of housing minority groups a complex problem to solve; but even more complex perhaps is the problem of housing an exploding population.

D) Creating Living Environments for Increasing Numbers of People:

The Problem:

In colonial America of 1800, there were 10½ acres of land for every citizen in the U. S. A. By 1900, the figure was lowered to 25 acres per person. In 1968, there were only 10.6 acres for each person in the U. S. A. By 1985, half of all Americans will live in three megalopolis areas. Where will all of these people live? Obviously, the American tradition of the single family homestead surrounded by acres of unused green lawn will have to give way to other forms of home design.

Solutions:

One solution to the problem of housing for increasing populations is the development of new towns in America. However, in order to understand the principle of new town development, one must first comprehend the stages that led to the development of new town theories.

The first movement away from the "single family syndrome" was the development of sub-divisions. A sub-division is the process of cutting up land to sell it to private individuals. In order for it to be a


sub-division, the land must acquire a new "right of way" as shown in the following example:

A sub-division shifts the burden of cost of streets, septic tanks, sewage, water mains, trees and so forth from the community to the developer. The developer hands the cost down to the private land purchaser. The street system is later on taken over and accepted by the town, and maintenance is then a public matter. The town creates a system of standards to which the developer must conform.

From the sub-division grew the concept of cluster zoning which is a clustering of sub-divisions together as illustrated below:

The advantages of cluster zoning over the grid patterns zoning used by the single family house are: the open space is in one area and can be shared by all members of the community. It is easier to lay out cluster zoning on hardship terrain than to build a rigid grid pattern on it. Shorter runs are needed for utilities. Community maintenance costs less than individual maintenance, and pedestrian walking systems are easier to design.

From cluster zoning grew the concept of the planned unit development
referred to as P. U. D. by city planners. It is the cluster principle with a mixture of land uses such as apartment rentals, single family rentals, neighborhood businesses, condominiums, collective open space, collective parking and so forth. In effect, it is cluster zoning developed into a self-contained community. It has the advantage over the single family grid pattern of diversity of housing type, and diversity of land use. An example of a P. U. D. is shown below.

From the P. U. D. grew the concept of the new town which is a community so complete that it is independent of the old city. The goals set by new town developers are to design a community that is balanced in kinds of income, and types of people that live in the town, that offers diversity of housing types, mixtures of industry, shared open spaces, and the opportunity to be able to walk to one's employment. Some of the most successful new towns in America are located at Reston in Virginia, Radburn in New Jersey, and Columbia in Maryland. It seems that the development of more new towns in the future may be one answer to the pressing problems created by over population.

One might conclude from the foregoing explorations, that the solutions to basic city problems must be as diversified as the situations are unique. The absolute answer is not the direction to be pursued.
3. VISUAL CONTENT

Fig. 121

Visual pollution

Fig. 122

Inner-city congestion created by the auto

Visual problems evoked by city living
Fig. 123

Housing the nation's minority groups

Fig. 124

Creating living environments for increasing numbers of people.

Visual problems evoked by city living
Even the sky can be visually polluted
A prime example of visual pollution--the Las Vegas Strip
Photo from the New York Times Magazine, October 17, 1971
The following projects address themselves to the four problems of the city as discussed in the verbal content. That is, visual pollution, automobile congestion, housing problems, and creating future environments so as to withstand the stress of an increasing population.

a) Visual Pollution:

1. Give each student a photograph of visual blight created by uncontrolled signs. The students are to take each sign in the photograph and redesign it using the following criteria: 1) Use visual symbols whenever possible, 2) unity of style of lettering, 3) unity of size and shape of the design, 4) solve problems of overlapping of signs, 5) create a theme that places the signs in harmony with their geographic locale and with the prevailing architecture. For example, a New England sea-coast town might have signs that are shaped like a sand dune, or textured like a shingle or lettered in blue like the sea.

2. College students could organize local boys' clubs and other community organizations into litter pick-up groups.

3. In the industrial design shop, the students could design and build functional litter baskets and place them throughout the community.

b) Automobile Congestion:

4. Design pollution free transportation to be used in the heart of the city.

5. Using a map of the largest local city, design a system of highways that does not cut through the heart of the city. This system is for express traffic. Next, using the same map, design a system of traffic to be used to get people from the expressway to the heart of the city. Finally, using a "blow-up" map of the C. B. D., design a system of pathways for the pedestrian. Render each of the three systems in different colors using a color key.

c) Housing Problems

6. Take photographs of the slum areas in your city. Back in the studio, try to design new housing that is compatible with the slum housing that is already in existence. Assume that the slums will be torn down very gradually and replaced with your housing designs.

d) Future Environments:

7. Assume that a planned unit development is going to be built in your city or town. Design a system of architecture that would be compatible with: 1) terrain, 2) existing architecture, and 3) the industrial or recreational feeling of the area.
8. Have the students trace the history of the use of circulation patterns within cities from a variety of cultures. The students could do this completely visual by using a Xerox machine to "run-off" a copy of each plan. The development of the gridiron plan $\|\|\|\|\|$, the radial plan $\bigcirc$, the ring plan, or the organic $\bigcirc$ plan could be traced. For example, the topic of one paper might be "a history of the grid pattern in Mediterranean cities," or "a history of the ring plan in Medieval cities."

9. Have the students give a five minute presentation of a topic assigned to them. The student would not be allowed to talk except to give his title. The entire presentation would be given using visual equipment such as opaque projectors and slide projectors. Some topics suggested are:

- Today's Suburbia
- Vertical Cities
- Coastline Cities in the U. S. A.
- Mountain Cities in the U. S. A.
- Desert Cities in the U. S. A.
- New York Slums
- San Francisco's Mission Street District

For further suggestions for topics, refer to Chapter V under the section called "Visual Projects Verbalized."

10. Divide the class into small groups of five or six students per group. Then, ask each group to: "create a plan for a self-sustaining human environment for 30,000 people for the year 2,000." This is to be done as an aerial view in map form and rendered on large pieces of paper so that everybody within the group can work on the project simultaneously. It is suggested that this project be given to the students before they have any previous knowledge of city-planning, that is, prior to any research. After the students have researched into city problems and city-planning problems, give the same project a second time on an individual basis. Compare and contrast the results of the two assignments. The educator will probably find that the most imaginative results occur before the student is exposed to city-plan structure through the knowledge of such people as Ebenezer Howard, Le Corbusier and Frank I. Wright. No doubt, then, this project is going to teach the educator as much about creative processes as the student will learn by doing the project!

It is suggested that a color key system be used on the plan--such as the following:

- Red--residential system (living area)
- Yellow--educational system
- Blue--commercial system
- Orange--civic center system
- Green--agricultural system
- Violet--transportation and communication system
- Black--industrial system
- Brown--park and recreation system

Each group should be prepared to discuss the following points about their finished plan:
--Why did you place each system where it is placed?
--How does your transportation and communication system help to unify the city?
--What makes your community completely self-sufficient and independent? What makes it very "liveable?"
--What are the best functioning parts of your plan--and why?
--What are the least functioning parts of your plan--and why?

11. Give each student a picture of a slum area. Have him write down:
   a) What is "off-whack.", 2) How would you change what is wrong? 3) How would you make this a better place to live? Next, each student is to hand the slum picture with this added evaluation to the person sitting on his right. This person will put this "word evaluation" into a visual form, thereby rectifying the problem of the slum.

12. Find out where "hardship terrain" is located in your town or city. Design housing for minority groups on that site. Take into consideration the possibility of town houses, row houses and cluster-development as well as single family houses.
Two plans for a self-sustaining human environment. Refer to the section of Chapter VII called "Visual Projects Verbalized" for the color key.
Two plans for a self-sustaining human environment for 30,000 people for the year 2,000, designed by a group of students at Worcester State College, Massachusetts.
Above—uncontrolled signs blight a corner
Below—corner redesigned by a student at Worcester State College
There is a lot of junk on the porch, and it can hardly stand up by itself because of the weak structure underneath the porch. The pipes are ugly to look at, and the stairs look dangerous. Children might get hurt playing under the porch. The trash looks ready to fall over.

**Fig. 132**

A visual pollution problem solved by students at Worcester State College. Above--the given problem; Middle--a student's verbal evaluation; Below--the problem is then handed to a second student who finds a visual solution.
CHAPTER VIII
THE AMERICAN ARTIFACT

1. VERBAL SYNOPSIS

Chapter VIII concentrates on one word: "Artifact." That one word, placed in the American scene, is investigated in all of its varied facets to discover its essential features. The facets of the American artifact explored are presented as a structural-model outline so that the verbal content might be scanned with ease and facility. Moreover, the educator might use this outline as a model by taking one artifact of his choice and relating it to the various facets proposed herein.

A STRUCTURAL-MODEL FOR AN ANALYSIS OF THE AMERICAN ARTIFACT

I. ARTIFACT DEFINED
   a) the term
   b) Extension of man
   c) Form follows function

II. TYPES OF ARTIFACTS
   a) Man-made
   b) Machine-made

III. ARTIFACT CONSUMERSHIP
   a) Strategies used to increase the GNP
      1. increased numbers
      2. the throwaway spirit
      3. planned obsolescence
      4. the short-lived object
      5. fashion-lines
      6. planned chaos
      7. credit buying
      8. hedonism

IV. HOW AMERICANS RELATE TO THEIR ARTIFACTS
   a) The emotional level: respect vs. salability
   b) Man's ability to adapt to poor design
   c) Prestige expressed through the object
   d) Over-scale, over-maintenance
V. SOURCES OF UGLINESS IN THE CONTEMPORARY ARTIFACT
   a) Pecuniary economy
   b) Misapplied ornamentation
   c) Temporary makeshift construction
   d) Over obsession with safety

VI. CRITERIA PRESENTLY BEING USED BY AMERICANS TO EVALUATE THE ARTIFACT
   a) Fashion
   b) Sales
   c) Sex
   d) The romantic
   e) Status symbols
   f) Adherence to the past
   g) Accept everything--reject nothing

VII. CRITERIA SUGGESTIONS FOR FUTURE EVALUATION OF THE AMERICAN ARTIFACT
   a) Function and substance
   b) Prudent consumers
   c) Quality of the object
   d) Education of the consumer

2. VERBAL CONTENT

I. ARTIFACT DEFINED

a) The Term:

   The artifact, according to Webster, is anything made by human-skill or made by man. It is an artificial product and not organic in the sense that nature is organic.\(^1\) Artifacts are a part of all recorded history. They are devised, invented, and made as adjuncts to the human being's ability to accomplish work or enjoy pleasure. A close examination of any object is a graphic description of the level of intelligence, manual dexterity, and artistic comprehension of the civilization that produced it. It can reflect such phenomena as the climate, religious beliefs, forms of government, the natural materials at hand, the structure of commerce, and the extent of man's scientific sophistication. All of these observations can be defined from a simple artifact without benefit

of a single written word. All of these facets are extracted from objects every day by the unskilled layman. The artifact is the silent language of the senses. This language occurs at the unspoken emotional level and judgments are formed and action is taken on the basis of it. It is the first way that a stranger accumulates knowledge when he finds himself isolated in the middle of a foreign culture.  

b) Extension of Man:

The artifact, or the man-made object, is sort of an extension of man's own body into space; it is a display of his very own physical and psychological constitution. To say it another way, the artifact is a reflection of man himself.  

To cite a few examples:

--A pen held in your hand is an extension of your own fingers.

--A pair of pliers is an extension of your forefinger and thumb.

--The telephone is an extension of your own mouth.

--The camera, the telescope, or the periscope is an extension of man's eyes.

--The computer is an extension of man's brain.

--An oxygen tank on a swimmer's back is an extension of his lungs just as his frog's feet are an extension of his feet.

c) Form Follows Function:

Another aspect of the artifact that should help to define it is its form. Every object ever created by man has two characteristics. First, it has a very specific function or use and secondly, the function creates a rather constant or permanent form. This form is the RESULT of


the function; that is, it evolves from the function. This is what artists mean by the often heard expression that "form follows function." This law of design that "form follows function" is as true of a ten cent pencil as it is of a ten million dollar building. An acknowledgement of this law is what good designing is all about.¹

By summarizing the foregoing content one might define the artifact as a man-made object that extends man's own physical boundaries into space. If the artifact is well designed it is because the form of the artifact follows the function; and regardless of the quality of its design, it acts as a silent language to all who behold it.

II. TYPES OF ARTIFACTS

a) Man-made Object:

Although all artifacts are the result of man's ingenuity, there are basically two different types of objects--the man-made object and the machine-made object. In the man-made object the appearance of the object's external surface results from the process of the production itself. The observer can almost feel vicariously the tools that were used by the designer or craftsman. The marks of the tools are often left on the object so that there is a strong sensual feeling. Moreover, hand-made objects have a "limit of perfection," that is to say, they are not technically perfect. Finally, the quantity of the objects made by hand will always be small in number.²

b) Machine-made Object:

By contrast, in the machine-made object, every esthetic quality is already implicit in the matrix design of the object, so that there is


²Faulkner and Ziegfeld, Art Today, pp. 94-95.
no characteristic sensual or touch feeling. An object made from wood, steel or plastic will most likely have the same external quality to the surface regardless of the material used. The objects run off the assembly line have a sense of perfection to them although this should not be confused with a sense of quality. The feeling of perfection refers only to the textural surface of the object not to the construction or function of the object. Finally, the machine-made object will be produced exactly the same way millions of times.  

III. ARTIFACT CONSUMERSHIP

Many of the objects that Americans own are not essential to their well-being. They are optional or luxury items that are becoming too plentiful for the earth to comfortably accommodate. In America, to buy and to consume is synonymous with "being a good citizen," in spite of the fact that these surplus objects are adding daily to the visual pollution of the environment. The fact is that the United States' economy depends upon the consumer's ability to spend more each year than the preceding year. To raise the gross national product (GNP) seems to be America's major value or goal, hence quality bows to quantity and we are known as the "quantitative society." This being the paradigm, only that which is measurable exists, and that which can not be measured does not exist and is therefore of no significance to the culture. This value system is even carried over to such realms as the field of psychology wherein measurements and statistics are sometimes made for the sake of measurement per se as the terminal goal. The next time that the educator attends a conference, he might make a notation of all of the papers delivered that deal with measurements. It will be a shocking awakening!

a) Strategies Used to Increase the GNP:

Vance Packard in his book *The Waste Makers* comments on several strategies used by the marketers to "up the GNP," -and to add to the quantity (not quality) of life. Some of these strategies are explained below. 7

1. Increased numbers:

The goal of this strategy is to push one more object onto the consumer: "Every person needs a spare pair of eye glasses." "One swimming suit is not enough," "the two car garage."

2. The throw-away spirit:

This strategy attempts to get people to use objects once and then throw them away. Kleenex, paper-dresses, costly packaging, one year antifreeze are some example of the throw-away spirit.

3. Planned obsolescence:

The technique of planned obsolescence has been one of the major developments of the postwar period. The marketer makes good products, induces people to buy them, and then the following year he deliberately introduces something that will make those products old-fashioned, out of date and obsolete. First, the function can become outmoded when a product is introduced that performs the function better. Second, the product can break down within a year; this is called obsolescence of quality. And finally, the form can be frequently changed to create in people a desire for the newest objects. This is called obsolescence of desirability.

4. The short-lived object:

7Vance Packard, *The Waste Makers* (New York: David McKay Co., Inc., 1963), the eight strategies following this footnote are abstracted from pages 25-147.
Some objects that could plausibly last for several years are manufactured to last for a very short duration. Some examples are women's nylons, rubber-cement and sand-paper.

5. Fashion-lines:

"Fashion-lines" is the development of the need to "keep up with the Joneses." The selling of many household appliances is dependent upon this rivalry that is instigated and encouraged by the marketers.

6. Planned chaos:

Marketers concerned with developing strategies for expanding sales find that a state of confusion, bewilderment and bustling is often the ideal one in which to operate. They are often intentionally negligent in not giving the consumer information needed for making prudent purchases and repairs, and frequently they engage in deliberate obfuscation of values. There is slight, if any correlation between the price and quality of much of the branded goods offered on the market. Packaging costs and weights are displayed in ways to intentionally confuse the consumer.

7. Credit buying:

The marketers achieved new break-throughs in devising techniques to make the buying of products "easy." The idea is to get more and more Americans to buy on future earnings. Lay-aways, credit cards, loan sharks, and quick credit have become a way of life.

8. Hedonism:

Another strategy developed by the marketers in the generating of love of possessions is a zest for finding momentary pleasures. Self-indulgence has overcome old Puritanical inhibitions. Ads read: "Pamper yourself," "why deny yourself." The pleasures of "instant living" appear in the forms of "ready-whipped cream." T. V. dinners and ready-wears
have become the slogan of the day.

IV. HOW AMERICANS RELATE TO THEIR ARTIFACTS

a) The Emotional Level:

There are many interesting ways in which Americans seem to relate to the artifacts within their environment. For example, Richard S. Lathram has observed that in America few people value their artifacts at an emotional level—the level of love and reverence. Our value system seems to be one of measuring an object on the basis of its salability rather than on performance and permanence. In other words, most artifacts in our culture are thought about at the emotional level only in terms of their worth as "trade" for another object. This phenomenon helps to explain the reason for the general low quality and "lack of character" in many American products.

b) Man's Adaptation

Another interesting aspect of the way in which Americans tend to view their artifacts is demonstrated in their relationship to the object within the civic, outdoor environment. Man seems to easily accept and adapt to the visual noise created by the over abundance of objects surrounding him. Man is an adaptable animal and in order to survive he often accepts very quickly the pressures of his environment. The question is: How much "visual garbage" can man accept without causing atrophy to his esthetic sense? How much can man adapt to and accept without becoming a "half-man."

c) Prestige:

Richard S. Latham, "The Artifact in a Cultural Cipher," in Who Designs America. All material for "How Americans Relate to their Artifact" is abstracted from pages 259-266.
Another aspect of the object worth some attention is the fact that it seems as though the way the contemporary individual regards objects has slipped below the pleasure level. Instead, artifacts have become the fundamental way we demonstrate our position or wealth. Many objects are planned and designed to fit this status idea. Possibly, the most interesting aspect of Western culture is that it falls back almost exclusively on the artifact to demonstrate position or status in the social structure, and for this reason the marketers are in a position to manipulate these qualities.

d) **Over-scale:**

Another broad observation is that Americans seem to have lost the relationship or ratio between their bodies and the artifact. Everything is over-scaled and there is a surplus of all things. The objects are often too large in a way that makes their use and ownership a costly and annoying experience. This phenomenon can only be understood on a time-attention scale. The time and attention that must be devoted to the artifact for upkeep and repair is time and attention robbed from the human beings involved.

V. **SOURCES OF UGLINESS IN THE CONTEMPORARY ARTIFACT**

Boris Pushkarev in his essay "Scale and Design in a New Environment" mentions several reasons why our man-made object lacks esthetic form. Some of these reasons are stated as follows:

a) **Pecuniary Economy:**

To begin with, beauty costs money and Americans seem to be

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9 Boris Pushkarev, "Scale and Design in a New Environment" in Who Designs America, ed. by Laurence B. Holland (New York: Doubleday and Co., 1966). All material for "Sources of Ugliness in the Contemporary Artifact" is abstracted from pages 105-114 unless otherwise indicated.
unwilling to spend money for beauty. As recently as a dozen years ago, it was accepted as an axiom in business circles that our nation can not afford "radical" good design. Although the trend is changing, what is discouraging is the fact that the total proportion of good design is still very small when compared with the total investment in construction. The trend now is limited to selected show-pieces of good design and does not involve the mass of average day to day construction.

b) Misapplied Ornamentation:

Another cause of ugliness is attributed to misapplied ornamentation. The American public seems to yearn for visual complications and curlicues. This untrained visual sense of the American public accounts for the imitation shingles on houses, plastic awnings, fake bricks and imitation fireplaces. Moreover, no other country in the world sells proportionately so much "period furniture" as does the United States. Americans display a strange reluctance to enjoy the present, preferring to substitute for it imitations of the past.

c) The Tradition of Temporary Makeshift Construction

Our downtowns and suburbs still bear the imprint of the frontier camp. This is in spite of the fact that our country is now over three hundred years old. Three of our greatest urban eyesores, the exterior fire escape, the elevated transit line, and over-head wiring, all basically American phenomena, are directly attributable to the makeshift spirit. The alternatives--fireproof construction, subway tunnels, and underground electric conduits were for a long time considered too permanent to warrant the added investment.

d) Over-obsession with Safety:

Our country is so concerned with preserving the quantity of life that we often forget about the quality of life. One can get evicted
from New York State parks if one swims beyond the "protected area."
Our environment sprouts fences, railings, guard-rails, in such profusion that one feels enclosed in a zoo cage. If we design objects rigidly controlled for utmost safety will the world be worth living in? This is the danger of safety! Concentration on accident-prone individuals, rather than on making the object absolutely accident-proof might solve the problem.

VI. CRITERIA PRESENTLY BEING USED BY AMERICANS TO EVALUATE THE ARTIFACT

At the present time in American society, it is unfortunate that the following negative attitudes have emerged as the basis of evaluating the man-made object.

a) Fashion:

The fad of the time dictates style both in clothing and in the decor.

b) Sales:

Sales attitudes are projected by the mass media, by ads, news broadcasts, television and so forth. These ads create pretentious needs; that is, they cajole the consumer into thinking that the purchase is an absolute necessity—even if the product is just a hair spray!

c) Sex:

When objects are displayed on the television screen or in ads, they are presented as being sexual objects— that is, they are either male or female in gender. For example, Marlboro cigarettes are portrayed as masculine. The slogan "Come to Marlboro Country" is visualized with a fearless and rugged cowboy. On the other hand, "Eve" cigarettes are planned to appeal to woman through the fancy design on the cigarette paper. In essence, everything is being sold except the tobacco in the
cigarette. After all, tobacco means smoke and smoke means lung cancer and other non-desirable effects.

d) The Romantic:

According to television ads, the purchase of a bottle of aspirin, tooth paste or shampoo will supposedly carry in its packaging all of the ingredients for an idealistic life, love, kisses, and all of the beatitudes of the model nuclear family. One might also take note of the close relationship established between the object and the romantic in the sense that the object is always a part of the romantic. As an example, the slogan "You can't take the country out of Salem" identifies Salems with images of open pure air, green grass, innocence and virginity. How could such a pure product possibly evoke lung cancer? One is led to believe that he is smoking daisies instead of nicotine!  

e) Status Symbols:

Objects in our society are identified with status. Diamonds, furs and large cars all relate to the role played within the hierarchy of the community. William H. Whyte notes that a corporation family is told through osmosis, and sometimes directly, exactly what car to own and when to own it, what type of house to own and the clothing to be worn both on the job and socially.  

f) Adherence to the Past:

Broad sweeping statements seem to be accepted by Americans as the

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criteria for good design. For example, the idiom "all Scandinavian design is good" is accepted without question; the myth is also perpetuated that "Louis the fourteenth furniture is flawless."

g) Accept Everything--Reject Nothing:

As part of the mood of our times, it often seems as though all objects are acceptable simply because they exist. That is to say, one object does not take precedence over another on the status level of good, better and best. The youth of America, in accepting all cultures, all music, all forms of art as a phenomena of diversity rather than as one of value (since value implies a hierarchy of things), seem to reject nothing. There is no process of elimination, no sense of selection; rather, the mood seems to be: "If it exists it is good."

VII. CRITERIA SUGGESTIONS FOR FUTURE EVALUATION OF THE AMERICAN ARTIFACT

a) Function and Substance:

Basically, the criteria for evaluating any man-made object should evolve around two factors: 1. its function or use, and 2. the materials chosen for its construction, that is to say--its substance.

1. Function:

The consumer might ask himself the following questions when evaluating the function of the artifact.

(1) Does the object do what it was designed to do?

(2) Does the object require more time, space, expense, or maintenance than it returns either in work done or in enjoyment? Is it worthwhile on a cause-and-effect basis? Measured this way, there are very few artifacts that give a fair return to their owner-user. Even very essential artifacts, those objects necessary to the maintenance of life rather than
to its enjoyment, are overscaled and complicated in our culture.\textsuperscript{12}

2. Substance:

The consumer might ask himself the following types of questions when evaluating the substance of the artifact. Were the materials chosen for construction the most suitable in terms of the cost of the object? Were local materials used when local materials were desirable such as in the building of a house? Are the materials genuine or are they a result of technological synthesis? If the material is synthetic, does it simulate the genuine material with functional success? Does the material conduct heat when it should not? Does it reflect light if it should? Does the material feel comfortable when in contact with the human body--and so forth.

b) The Prudent Consumer:

The consumer might restore pride in his own consumership. He can accomplish this feat by boycotting the style-obsolescence marketer. He can insist that the marketer show greater responsibility for the performance of his objects by insisting on honored guarantees. He can patronize the producer who offers to assist with his own repairman. He can check out the quality of the merchant or merchandise with local consumer bureaus before purchasing the object; and, he can join a consumer information association.\textsuperscript{13}

c) Quality of the Object:

It would help the consumer if agreed standards of quality were available to assist the consumer in making choices. At this moment,


milk is the only product that has to abide by a uniform consumer standard. In contrast, frozen orange juice manufacturers water the product down more every year and get away with it. Some form of grade-labeling would help the consumer to choose on the basis of quality rather than on brand-image. Congress has passed bills requiring manufacturers to list the contents on labels; but a list of the contents does not insure the quality of the contents.  

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d) Education of the Consumer:

The consumer must be made aware of the quality of the man-made object at an early age. The child should be exposed to desirable criteria and standards for evaluating the object during his early school years. Moreover, the consumer of any age should be made aware of the fact that present object uglification is created substantially by people who have had little or no visual training, and who are not aware of the esthetic consequences of their decisions. Administrators, real-estate men, builders and businessmen have more power in the shaping of the physical environment than do artists, architects and other people trained in visual fields.  

What can be done about the ugly objects on the American scene? We cannot legislate beauty or esthetics. And yet, our society has failed to provide the citizenry with the freedom from endless visual disorder and object ugliness. Perhaps, in the future, we will need to stress visual education and rely on those people who have been visually trained to make the decisions for the visually untrained majority.  


Extensions of men

Above: A pen is an extension of your own fingers.
Below: A pair of pliers is an extension of your forefinger and thumb.
Extensions of man

Above: Man's first home was an extension of the woman's womb.
Below: A telephone is an extension of the mouth.
Fig. 135

Extensions of man

Above: A camera is an extension of the human eye.
Below: A computer is an extension of the human brain.
Types of artifacts

Above: The machine-made object—technical perfection
Below: The man-made object—technical imperfection
Fig. 137

Strategies used to increase the GNP

Above: The short-lived object
Below: Fashion-lines
Fig. 138

Criteria presently used to evaluate objects

Above: Selling objects through status-symbols.
Below: Selling objects that require high maintenance and cost.
Objects can reflect the values of our times

Above: War orientated sculpture adorns the city square in Worcester, Massachusetts.

Below: This object reflects the fact that time is equated with money in our society.
4. VISUAL PROJECTS VERBALIZED

The following projects attempt to involve the student in the various aspects of the designing of objects as stressed in the structural-model outline. In other words, these problems cover the facets of consumership, types of objects, person to object relationships, object ugliness, and attitudes related to objects. The projects cross-cut these areas in the hopes of giving the student the direct sensual involvement so necessary for a genuine understanding of the object-environment.

1. Design a collage showing the ways in which man extends his body into time and space. Do not use the examples given in this chapter; but rather, create your own examples.

2. Use the structural-model outline to evaluate the design of one machine-made object of your choice. Try the same problem using a man-made object instead.

3. Try a visual study showing contrasts of several objects. Two of the same objects are to show both good and poor examples of design. For example, a Volkswagen might express good design and a 1957 Ford with fin-backs might express poor design.

4. Choose one machine-made object and trace the evolution of its design. Xerox photographs of the objects, label each one according to its time in history and evaluate the design quality of each one. Some objects that might be traced are the telephone, typewriter, airplane, electric iron, oven, and so forth.

5. Try an invention on the basis of the ways in which man's body can be extended into space. For example, perhaps an "arm" could be invented that could feed materials to be xeroxed into the "mouth" of the machine so that your arm would not have to feed materials into it.

6. The educator might try brainstorming with a class to come up with a list of objects that have "built in obsolescence." Next to the object listed on the board, write down the ways in which the object is designed to be obsolete. Next, each student is given one of the objects on the list and is asked to redesign the object for durable use. This designing is to be sketched out using pencil and paper. Finally, the student is to build his redesigned object in three dimensional form using materials that would simulate the real material to be used.

7. Think in terms of designing objects without stereotyped concepts. For example, design a chair without four legs, design a fork without prongs, design an umbrella without a handle, and so forth.

8. The educator might ask each student to bring one object into class
and then evaluate each object through a group discussion. Use the criteria presented under number six of the verbal content for the discussion.

9. Design packaging for a given small object brought into the studio by the educator. Ease in opening the package and minimum usage of packaging should be stressed.

10. Project into the future and design objects for the needs of the future. For example, some of the following projects might be attempted:

Design:
--- A personal helicopter, planned for individual use like a car is used individually so as to commute to work.
--- A battery operated car for use in the C. B. D.
--- A fast moving, hand-operated machine that hems skirts.
--- A combination vacuum cleaner and floor washer.
--- A telephone combined with an inter-T. V. so that you can see the person that you are talking to.
--- A wheel chair for cripples that is self-propelled (automatic) rather than hand propelled.
--- A way to get groceries into a third floor apartment from the car garage underneath the apartment. No elevator is to be used.
--- A sail boat (pleasure boat) that can also submerge.
--- Roller skates that can be transformed into ice skates.
--- A chess set using modern symbols.
--- A comfortable telephone booth.
--- A beer can that opens by itself but does not have throw-away parts that presently litter parks and beaches.
--- A way to transport luggage from auto to airport without carrying the luggage. This device is to be an integral part of the luggage.
--- A regular static chair that can be converted into a rocking chair, that is, a convertible chair.
A COMPARISON: THE EYE AND THE CAMERA

Fig. 1h0

An Example of the object as an extension of man's body is illustrated by a student from Worcester State College.
AN UMBRELLA WITHOUT A HANDLE

This umbrella design releases both hands for other uses. It clings to the shoulder with an adjustable spring clamp. It is plastic deflecting so you can carry it around in your pocket.

designed by
John Angelo
"THE RAIN BUB"
('Rainbub' means Rainbubble)

Fig. 1h1

Designing away from stereotyped concepts—a student from Worcester State College designed an umbrella without a handle.
A visual analysis of the machine-made object attempted by a student at Worcester State College. Above—two tea pots compared; and below—two desk lamps compared.
A student designs a comfortable telephone booth. Above--full view; below--detail of the tele-board.
Chapter IX expresses the visual environment through the fine arts; it suggests projects that might be employed on the level of higher education in order to develop environmental sensitivity. In a sense, this approach to environmental issues is a non-functional approach. In this chapter, vision is used as the primary mode of perception to develop sensitivity toward the environment whereas in Chapters I through VIII the projects were presented in order to actually change environmental conditions. To phrase it another way, in the first eight chapters, vision was used to simulate futuristic environmental conditions so as to build a better tomorrow. In Chapter IX, however, the student uses vision to subjectively express present environmental conditions so as to relate his feelings to us about the physical environment as it exists today.

Section two "verbal content" explains and clarifies various aspects of the projects presented in section four "visual projects verbalized." It also presents a glossary of technical art terms used. This is for the benefit of those educators who are not expertise in the jargon of art.

Section four "visual projects verbalized" is the core of this chapter. It presents ten projects, created by the writer, that relate the use of the fine arts to environmental issues so as to develop the student's sensitivity, sharpen his sensual perception and enrich his way
of viewing the environment. Perhaps, most important, it is hoped that the student will enjoy the actual process of creating these visual works that employ a variety of fine art media.

2. VERBAL CONTENT

Aspects of the Projects Presented:

Use by the educator:

The ten projects presented in section four "visual projects verbalized" are designed for use in higher education. By this term, it is meant that they are planned for students from grade nine upward. The adjustment of the project to the specific age group is left to the discretion, situation and experience of the educator involved, for these projects will require an abundance of flexibility on his behalf.

Structure-model outline:

Each project is structured using the following outline: a) subject, b) object, c) media, and d) motivational outline. These segments of the project are clarified as follows:

a) Subject:

The subject is the topic or title of the project.

b) Object:

The object presents the objective or the rationale for presenting the project; it explains the relationship between the topic and environmental education. It explains how sensitivity might be developed in the student.

c) Media:

Media is the material to be used by the student; however, various other media could, no doubt, be used with equal success. The media presented is only a recommendation.
d) Motivational-outline:

Motivational sources, presented in outline form, is the presentation of ideas and suggestions in an unfinished and sketchy form. It is expected that the educator using these ideas will engage in a great deal of research before presenting the lesson. In other words, this is not a "recipe-book." The purpose of the motivational outline is just that!—to motivate and guide the educator toward a particular objective. Imaginative adaptation of these projects rests with the inventive abilities and research accomplished by the educator prior to presentation of the project.

Glossary:

Following is a listing of technical terms used in section four "visual projects verbalized." They are presented in alphabetical order.

Bas-relief sculpture--A piece of sculpture in which the figure elements or forms are still connected to the physical ground. The forms are three-dimensional but they are not totally free. It is the half way point between two and three dimensional form. The pediment of the acropolis of Athens is an example of bas-relief sculpture.\(^1\)

Collage—A composition made by pasting together on a flat surface various materials such as magazine images, newspaper images, wallpaper, printed matter, photographs, illustrations and cloth.\(^2\)

Kinetics—Vision in motion; simultaneity of space and time together. The articulation of sound, light and movement. Its counterpart is the art of fixed perspective and the static one pointed vision of the Renaissance era.\(^3\)

Mural—Any painting rendered on a large flat surface. A fresco is a type of mural using egg yolk as the binder.\(^4\)


Papier mache—An inexpensive medium consisting of a binder such as wheat paste and newspapers. The two materials are mixed together after the newspaper has been shredded.5

Simultaneous vision—Simultaneous vision implies that the image created by the artist represents an attempt to transform images experienced serialistically into an instantaneous visual experience for the viewer. Such a painting stresses the qualitative passage of time rather than the quantitative passage of time; and the significant events, or perception, are perceived as a collection of a single unified experience. Simultaneous vision is often referred to as "canned time."6

Tempera paint—A technique of painting using a pigment mixed with egg yolk, glue or casein. The medium is also mixed with water which is then referred to as gouache or designer's colors.7

Tension—Tension is action or life through the force of external pressures brought forth onto the object or into nature. Sometimes these forces are conflicting pressures such as the counter-meeting of wave currents creating thunder in the sky.


Motivational material for project two.
Contrasts in surface textures shown through the use of scale.
Above: Macroscale photo showing the texture of sand--smooth, soft, mono-colored.
Below: Microscale photo showing the surface texture of the same sand--coarse, rough and multi-colored.
Motivational material for project three—nature's moods.

Above and below: The calm mystery of dusk.
Motivational material for project three.
Nature's ever-changing process.
Above: Tension built up by the shifting of clouds before a storm.
Below: The constant change of nature's foliage.

Fig. 146
4. VISUAL PROJECTS VERBALIZED

Following are the ten projects designed to develop sensitivity toward the environment. They are presented in concise phrases and in outline form.

PROJECT ONE

SUBJECT: Motion, light and sound in nature

OBJECT: To develop awareness of differences between natural kinetics and artificial kinetics.

MEDIA: Kinetic sculpture.
Wood as the structural material along with
- gears
- light bulbs
- mirrors
- magnets
- neon-lights
- blinking lights
- roller skates
- bells and so forth.

MOTIVATIONAL OUTLINE:
1) The history of kinetics:
   - the water-clocks of Greece
   - the Swiss cuckoo clock
   - the Piazza San Marco
   - motor driven Christmas store displays
   - and so forth

2) Natural kinetics:
   - the force: wind currents
     - gravity
     - temperature
     - humidity changes
     - water currents—and so forth
   - These forces used to create:
     - mobiles
     - weather vanes
     - wind mills
     - swings
     - water fountains—and so forth

3) Artificial kinetics:
   - Man-made motive forces used to drive sculpture
     - electronic devices
     - photochemical devices
     - electromagnets
     - watch springs
     - electric motors
     - batteries
     - household current—and so forth
4) Kinetic sculpture:
   Opens up a whole new source of motivation in sculpture. It permits treatment of atmospheric movement such as leaves blowing against trees, hail striking cobblestones, or airplane shadows moving across meadows. Kinetic sculpture can deal with motion, with events, with things that happen.

5) Kinetic sculptors:
   Balla
   Du Champ
   Gabo
   Calder
   Moholy-Nagy
   Fontana
   Jean Tinguely
   George Rickey
   Earl Reiback
   Antonakos
   Chryssa
   Willenbecker
   Lye
   Wilfred
   Van Saun
   Healey
   Raysee

6) Give each student a different topic based on the following suggestions. The student is to create a piece of sculpture using motion, light or sound.
   Waving of branches
   Trembling of stems
   Wheat blowing in a field
   A soaring seagull
   The tide goes out
   The tide comes in
   The erosion of the coast line
   Soil erosion
   The migration of birds
   A puddle of water moving
   Shifting clouds
   The rotating earth
   A current in the water
   A tornado current
   Gravity
   The flight of the bumblebee
   Rain drops
   Melting snow
   Sprouting leaves
   Rotation of the sun
   The growth of the flower
   Volcano
   Hurricane
   Flood
   Blizzard
Thunderstorm
Shifting sand dunes
Wax and wane of the moon

PROJECT TWO

SUBJECT: Nature's surfaces

OBJECT: Develop awareness of the various textural surfaces found in nature. To develop the sense of touch.

MEDIA: Collage

MOTIVATIONAL OUTLINE:
Part A
1) Look for surfaces outdoors with a tactile texture such as wood, metal, brick, concrete, rocks, leaves, etc. . .
2) Rub a soft pencil over each area. Use tracing paper. Collect about thirty of these rubbings. Trim and mount on one sheet of paper to form a collage.
3) Take just one of these textures that you like best from the whole group and reproduce it in tempera colors. Exaggerate the textured quality as much as possible.

Part B
Take one of these pencil textures and apply it to a form in nature that would seem very absurd to anyone. For example, a fish might have the texture of grass instead of scales; or an egg might be as rough as nails.

Part C
Try a collage by collecting the actual textures as found in nature and imbedding them in liquid plastic to form a collage.

PROJECT THREE

SUBJECT: Nature's moods

OBJECT: Create awareness of the moods found in nature, and to stress the fact that nature is an ever-changing process.

MEDIA: Water color painting

MOTIVATIONAL OUTLINE: 1) Lecture:
Twentieth century art
Early abstractionists such as Wassily Kandinsky and Piet Mondrian
2) Show slides of Kandinsky's paintings
3) Give each student a different title for his or her painting based on the following moods of nature. Stress: paintings should have a feeling of movement just as nature is never static.

Titles for paintings:

Before the storm
Soft, mellow shower
White caps in the sun
Sand storm
Fog horns
Velvet grass
Snowbound
Serenade of spring
The pounding surf
Cool evening breeze
Ebb tide
Downtown at night
The sunny side of the street
The wild wind blows
Flowering trees
The flowers have gone
One autumn leaf
The warmth of the winter moon
High on a windy hill

PROJECT FOUR

SUBJECT: The senses expressed through vision

OBJECT: To develop sensitivity to the use of the other senses through the use of vision as the tool.

MEDIA: Watercolor

MOTIVATIONAL OUTLINE: Talk about how several sensual things "happen" to us every day, but often we do not seem to be aware of them or "tuned-in." Try to rediscover these sensations by painting one of the following topics:

Brash, harsh sounds
Slamming the door
Echo, echo—echo, echo
Sweet, soothing sounds
Irritating noise
Clanging of dishes
Rain on the roof
Hot, pepper taste
Sour tasting
Sweet tasting
The smell of salt air
The smell of onions
The smell of spring rain
Mountain echo
Pecking at the typewriter
Static on the radio
Talking in a theater
Machines in a factory
Fire sirens
Dentist drill
Waves splashing
Leaves blowing
Footsteps at night
Forest sounds
Thunderstorm sounds

PROJECT FIVE

SUBJECT: Tensions of nature

OBJECT: To stress the fact that nature, like man, exists within the turmoil of quick change and daily tensions.

MEDIA: Line drawings

MOTIVATIONAL OUTLINE:

Part A

1) Tension—Explain tension as action, as life brought about through the force of external pressures. For example, when a rock is falling, something external is happening to the rock, something is creating a tension. Did the soil erode? Was it washed away by a waterfall? Did a person kick it? Why is it falling?

Another example—when a wooden step becomes worn out, it is because the external pressure of many feet going over the surface of the wood has worn it out. Again, this is an external tension.

2) Try to express the following topics using line drawings:
   - a rock falling
   - a rock pushed
   - a rock being pulled upward
   - a rock worn and battered
   - a rock being balanced in the air
   - a rock being dynamited

Part B

Using any chair available in the room, observe the forces of pressure or tension at work. Interpret the forces into line drawings.

The chair:
   - The legs are kept apart by what force?
   - The legs hold what weight?
   - The seat is worn out by what force?
   - The chair's shape was designed by what needs?
   - The feet of the chair are being worn out by the floor or the feet are wearing out the floor? Which force is the stronger of the two?
Part C

Interpret a landscape using lines of relaxed feeling.
Interpret a landscape using lines of taut tension.

PROJECT SIX

SUBJECT: The formation of symbols from nature

OBJECT: To help the student to understand how visual symbols, using nature as its source, can become a universal language. How concrete nature turns into the abstract through sheer usage.

MEDIA: Tempera paint

MOTIVATIONAL OUTLINE:
1) Universal symbols:
   Experiences shared by a whole culture or by several cultures.

2) Private symbols:
   The private domain of the individual

3) Signs contrasted with symbols:
   The difference between signs and symbols

4) Contemporary visual symbols:
   Show the class various visual symbols used by different cultures; use these symbols to discuss the above issues.
   Ask the class to "see a movie." In class, the students are to put the sequence of the plot into symbolic vision using symbolic characters. The project is to be done in book form using tempera paints.

PROJECT SEVEN

SUBJECT: An object from nature in simultaneous vision

OBJECT: To stress the fact that an object from nature is not one static view from one position; but rather, an object from nature has many diversified facets.

MEDIA: Tempera color

MOTIVATIONAL OUTLINE:
1) Explain:
   Growth of pop art, op art and happenings from cubism.
   Growth of cubism from simultaneous vision.

2) The great cubists--Picasso and Braque
   Show slides of their work

3) Explain simultaneous vision:
   Both hidden and visible aspects of the object shown
on one format without regard for time sequence. A span of time is condensed or "canned" onto one format.

4) Have students bring to class one vegetable or fruit and a knife. They are to depict the object in as many of its aspects as possible by dissecting the object. They are to hold the segments at every possible angle while painting—cut it, twist it, peel it, break it, external views, internal views, X-ray views, sectional views, whole views, rotted, ripe, frozen, unfrozen. Each format, when finished, should be expressive of at least a dozen different views in simultaneous vision.

PROJECT EIGHT

SUBJECT: The deteriorating environment

OBJECT: To develop sensitivity to the deteriorating quality of the physical environment.

MEDIA: Collage

MOTIVATIONAL OUTLINE:

Part A

Write a short poem about something within the environment that is irritating you personally. Use images cut from magazines, felt pens, and colored tissue paper to illustrate this poem. Combine these three materials together to create a collage. Finish the surface with clear shellac. The typed poem should be woven into the total fabric of the composition.

Part B

A Collage of the Year 2,000 A. D.

Use any small geographic area of your choice and assume that mankind has done nothing positive in the way of "environmental control." Assume that he has continued along the same channels that exist today; and then make a collage of the year 2,000 A. D.

PROJECT NINE

SUBJECT: City planning

OBJECT: To develop a sensitivity to architectural visual forms of the past and present.

To acquire visual knowledge of such environmental areas as:

the history of cities, city plans, and new towns.

MEDIA: Collage

MOTIVATIONAL OUTLINE:

The student is to give a brief verbal report in class on one
of the following topics. Next, he is to make a visual collage of the same topic.

The topics:
Garden City by Ebenezer Howard
Ville Radieuse by Le Corbusier
Broadacre by Frank L. Wright
Williamsburg by the English Colonists
Medieval Cities
Baroque Cities
Early American Cities
The Gridiron Plan
Radial Plan
The Ring Plan
New Town in Reston, Virginia
The First Cities in Civilization (The Fertile Crescent)
The Massachusetts Turnpike Authority
The Massachusetts Port Authority "Massport"
The Massachusetts Transit Authority (MBTA)
Radburn in New Jersey
Greenbelt in Maryland
Columbia in Maryland
British Newtowns
Russian Newtowns
Vertical City Housing in the U. S. A.
New Systems of Mass Transit
Modern Shopping Centers in the U. S. A.
Massachusetts Regional Planning Agencies
Cluster Development
Tapiola, Finland
Swedish New Towns
Zoning
Federal Housing Acts
Greek Domestic Housing

PROJECT TEN

SUBJECT: Environmental problems

OBJECT: To develop sensitivity to the visual and physical aspects of the American environment.

To acquire visual knowledge of a variety of environmental problems.

MEDIA: Collage

MOTIVATIONAL OUTLINE: The students are to collect as much visual data as they can from one of the following topics and create a collage.

The topics:
Visual Noise
Auditory Noise
Community Uglification
Community Planning
Environmental Control
The History of Conservation in the U. S. A.
Nature in Relation to Architecture
One Example of an Eco-system
The Environment of the Future—What Kind of World Do you Want
Population Control
Mass Transit Problems
Mass Transit Solutions
SST Problems
Recycling of Wastes
Citizenship Esthetics
The Interior Environment of a Small Room
Types of Pollutions
Quality
The Quantitative Society
Technology and Human Values
The Throw-away Society
Flora and Fauna (How and why they are disappearing)
Our Phoney Environment
Visual Images of a City
A Visual Study in Proxemics

5. VERBAL PROJECTS VISUALIZED

Section five of the previous chapters exemplified studio-work executed by students. However, it should be stressed that the writer is also a student of the environment. The paintings in this section, then, are credited to the writer. An exception to this is the last visual illustration called "Visual Symbols." That page is credited to a student at Worcester State College, Massachusetts.
Fig. 147
"Before the Storm"

Fig. 148
"Frozen Beach"

Project three--nature's moods
"One Wave"—the endless motion of nature.

"During the Blizzard"—nature's cold cruelty

Project three—nature's moods
Above: Project seven—simultaneous vision. One pepper is viewed from many angles and also dissected.

Below: Project five—sculpture called "Rocks in a Box." The force of the box is pushing against the rocks thereby setting up a very strong tension created by an external force.
Fig. 153

An example from project six. Nature has been abstracted by man from all cultures to form visual symbols. Some of these symbols expressing the "Cycle of Life" are sketched by a student from Worcester State College.
CHAPTER X

THE ELEMENTARY CURRICULUM

1. VERBAL SYNOPSIS

Chapter X suggests ways in which environmental education graduate students might involve themselves in the environmental education programs of the public elementary schools. This goal is attempted by surveying the problems involved in organizing an environmental education "drop-in center," presenting teaching strategies, listing current resource-references, and by suggesting some projects for elementary school children.

To be more explicit, Part A "The Drop-in Center" suggests some ways of organizing a school-community environmental education "drop-in center" so as to enrich the resources of teachers who are responsible for the education of the elementary school child.

Part B "Teaching Strategies" suggests various techniques or methods of teaching environmental education to young children.

Part C "Resource References" presents material that might be made available to the teacher who "drops in" at the center.

Section four suggests some visually oriented environmental education problems that might be presented to children in the elementary schools.

2. VERBAL CONTENT

PART A--The Drop-in Center:

The school-community drop-in center should be geographically
accessible to the elementary school teacher. It should include on its staff graduate students who are engaged in a variety of academic disciplines. Their extended function should be the collection and collation of what is happening in their locale, the preparation of educational materials, the dissemination of information, technical counseling to citizen groups and consultation. The specific program would be organized under the following major thrusts:¹

1) Develop educational materials

   film strips, case studies, slides, brochures, manuals, articles, etc.

2) Offer information-education

   short courses, seminars, public forums, etc.

3) Offer residence instruction

   refresher post-grad education on other campuses

4) Engage in basic research

   provide fellowships, seminars and other degrees to qualified personnel

5) Act as consultants to community groups

6) Demonstrate model programs

7) Practice teach in the elementary schools

8) Engage itself in teacher-education

9) Provide graduate courses in depth

10) Set up a depository for case studies

11) Act as an information clearing house

12) Provide field-seminar opportunities for educators

   provide an annual environmental education conference and workshop

13) Provide an evaluation procedure which would enable graduates to provide feedback to their parent institutions.

14) Provide guest speakers, field trips, studio and lab experiences, and "outside of college" assignments.\(^2\) Another function of the environmental center, not mentioned above, should be to dispell myths that have been nurtured about the environment. Usually the destruction of myths implies the changing of attitudes on the part of both pupil and teacher; this, of course, involves the field of axiology.

Some of the myths about the environment that need to be dispelled are:

--The endless abundance of natural resources.

--The infallibility of science.

--The environment has an insatiable capacity to absorb abuse.

--Bigness and quantity are next to godliness (We genuflect to the G. N. P.)

--Specialized expertise in a field excludes value judgment.

--Education deals with facts, measurements and knowledge, not with values.

--The cluttered make-shift look of our country is the mark of a young country recently emerging from a frontier.

--Federal funding on the campuses is dispersed equally between all disciplines.

--All departments within a University are eager and willing to "go inter-disciplinary."

--Students need and want to be prepared in a highly specialized area.

--Young people hold their parents' value system in high esteem.

--The way of the "rugged individualist" is the right way and the most American way.

PART B--Teaching Strategies:

Part B of this chapter suggests various techniques or methods of teaching environmental education to children in the elementary schools. Some of these strategies might also be used to dispell the environmental myths mentioned in Part A. The strategies explained below are: a) discovery trips, b) discussion groups, c) debate groups, and d) the delegation of responsibility.

a) Discovery trips

The children are brought on field trips and are encouraged to ask questions about the environment around them. Then, they are encouraged to seek their own answers to their own questions. They completely explore the object with which they are concerned by observing it through its changes, smelling it, sketching it, tasting it, photographing it, reading about it, manipulating it, constructing with it and so forth. The idea is to get to know the object on a first hand basis. After that, the youngsters draw their own conclusions about the question-on-hand instead of relying on secondhand information that the teacher artificially puts into their head through words alone.\(^3\)

b) Discussion groups

This technique is especially useful with the upper elementary students. After assigning environmental reading to be done at home, the students are to write down three controversial questions pertaining to their

\(^3\)This listing of myths is the contribution of a group of students as a result of a brainstorming session. Worcester State College, taped session, Dec. 17, 1971.

reading. Next, they are to tear the paper into three parts so that they have three separated questions. The questions are collected by the educator and placed in a box. Then, the class group is broken down into small sub-groups with about five or six members to each group. One person is elected by each group to be the coordinator. Then, the teacher hands a group of questions to the coordinator whose job is to:

--read the questions aloud.
--keep the conversation moving rapidly by reading the next question when the first is depleted.
--keep talkative members from hoarding all of the time.
--bring the quiet members into the conversation.
--keep the discussion related to the question asked on the paper.5

1. At the first meeting of the discussion section a controversial topic is assigned.
2. The class is then divided into sub-groups of about six students per group.
3. Members of the debate group scheduled for a particular date are not notified until the beginning of the class which side of an issue they must defend or argue. Therefore, each participant must inform himself (with a prepared statement) on both sides of an issue and be prepared to speak on either side.
4. Each member of the group speaks for a maximum of five minutes on the assigned topic.
5. After the prepared statements have been presented, panel

5This technique was developed by the writer and is used frequently with students at Worcester State College, Massachusetts.

participants engage in open discussion for five to ten minutes still maintaining their assigned positions.

6. The discussion is then opened to the whole class. At this time, the panel participants may speak on either side of an issue.

7. Students are evaluated on the basis of their performance, not on the basis of their opinions.

Controversial topics that might be used are:

--Should the optimum population on the earth be based on how much food can be produced?

--Is competition bad among mankind?

--Can we obtain a Utopia on earth?

--Should the U. S. government ban or severely restrict the use of internal combustion engines?

--Is a particular scene shown to them in visual form ugly or esthetic?

--Is civic beauty really worth the money?

--Should highways be built through cities?

--Can modern technology prevent systematic uglification?

d) The delegation of responsibility

This technique, which could be used in any grade in the elementary schools, involves giving the young child the same responsibilities in organizing environmental activities that an adult might encounter. Of course the size of the task is gaged to the age level and capacities of the students. To cite a few examples of this technique, a third grade might bring in a "guest speaker." A fifth grade might start a weekly newspaper and ditto off local environmental happenings. An eighth grade might sponsor an environmental conference with a neighboring school, and a first grade might build up a library of environmental books for other first graders to enjoy.
PART C. Resource References:

Part C presents an array of environmental education resource material. A listing of this material should be available in the "drop-in center" in a catalogue form. Also, much of the actual material should be on hand for instant and immediate use. The types of resource-reference material presented in this chapter, are listed alphabetically and include: a) agencies, b) books, (environmental education only), c) conferences, d) curricula, e) films, and f) periodicals.

a) Agencies

The following federal and national agencies offer the elementary school teacher a rich source of films, pamphlets, booklets and so forth.

American Conservation Association
30 Rockefeller Plaza
New York, New York 10020

American Institute of Architects
1735 New York Ave.
Washington, D. C. 20006

American Institute of Planners
917 15th Street, N. W.
Washington, D. C. 20005

American Society of Landscape Architects
2000 K. Street
Washington, D. C. 20006

Appalachian Regional Commission
1666 Connecticut Avenue
Washington, D. C.

Citizen's Advisory Committee on Recreation and Natural Beauty
1700 Pennsylvania Avenue, N. W.
Washington, D. C.

Conservation Associates
Mills Tower
220 Bush Street
San Francisco, California

The Conservation Foundation
1250 Connecticut Avenue, N. W.
Washington, D. C. 20036
Department of Agriculture
Washington, D. C. 20250

Department of Health, Education and Welfare
Washington, D. C. 20201

Department of Housing and Urban Development
Washington, D. C. 20511

Department of the Interior
Washington, D. C. 20240

Department of Transportation
Washington, D. C. 20590

Ford Foundation
477 Madison Avenue
New York, New York 10022

National Audubon Society
1130 5th Avenue
New York, New York 10028

National Foundation for the Arts and Humanities
1800 G Street, N. W.
Washington, D. C.

National Education Association
1201 16th Street, N. W.
Washington, D. C. 20036

National Parks Association
1300 New Hampshire Avenue, N. W.
Washington, D. C.

National Recreation and Park Association
1700 Pennsylvania Avenue, N. W.
Washington, D. C. 20006

Sierra Club
1050 Mills Tower
220 Bush Street
San Francisco, California

Urban America
1717 Massachusetts Avenue, N. W.
Washington, D. C.

Urban Land Institute
1200 16th Street, N. W.
Washington, D. C. 20036

Water Resources Council
1025 Vermont Avenue
Washington, D. C. 20005
b) Books

The following list includes only those books concerned with environmental education. It does not include readings about the general environment. The books are listed alphabetically according to title.

Career Opportunities: Ecology, Conservation and Environment

Citizen's Manual for Community Action

College, Community and Conservation
The Conservation Foundation, 1250 Conn. Ave., N. W., Washington, D. C.
(Reference to Title I of the Higher Education Act of 1965.)

Community Action for Outdoor Recreation and Conservation

Conservation—in the People's Hands
American Association of School Administrators
National Education Association, 1201 16th Street, N. W., Washington, D. C.

Conservation Materials for Conservation Education
Ohio State University, Columbus, Ohio, 1966. (An analysis of about 2,000 pieces of conservation materials.)

Conservation Tools for Education

Education That Cannot Wait

Environmental Education: Pre-site and Post-site Lessons
Mario Menesini for Educational Consulting Service,
89 Orinda Way, Orinda, California. (Sixteen lessons for grades five and six)

Focus on Environmental Education
Vivian and Rillo for The Curriculum Development Council for Southern New Jersey, Glassboro State College, Glassboro, New Jersey, 1970. (Forty-five films and filmstrips are recommended.)

Guidelines to Conservation Education Action
Isaac Walton League of America, Nature Center Division
1130 5th Avenue, New York, New York, 10028
Man and His Environment: An Introduction to Using Environmental Study Areas
Association of Classroom Teachers, National Education Association, Washington, D. C.


New Jersey Environment and Outdoor Education Projects
New Jersey State Council for Environmental Education, Office of Program Development, New Jersey State Department of Education.

Outdoor Education on Your School Grounds

The School and the Environment: A Report on a National Seminar
The Institute for Development of Educational Activities, P. O. Box 628, Fair Hills Branch, Dayton, Ohio. (Audio-visual aids and curricula.)

c) Conferences

Annual Design Conference, Co-sponsored by Penn State and Carnegie-Mellon Universities. (Focuses on the interface between behavioral research and environmental design.)

National Conference on Environmental Education, Sponsored by the University of Wisconsin, Green Bay, U. S. Office of Education and Wisconsin Department of Public Instruction.

The New York State Environmental Education Conference, First conference held in 1971.

UNESCO Mid-West Environmental Conference, Omaha, Nebraska. Sponsored by the U. S. National Commission of UNESCO, first conference held in 1971.

d) Curricula

Educational Research Information Center (ERIC)
1160 West Lane Avenue, Columbus, Ohio. (Ask for their curricula manuals.)

Dr. Paul Brandwein for California Department of Education, Sacramento, California. (For grades one through twelve.)

New Teacher's Guide to Conservation Education

The Penn State Curriculum Series, Report No. 15
J. D. McAulay for Curriculum Materials Center, Penn State University, University Park, Pennsylvania. 1969. (A teaching unit on conservation problems written by education students.)
e) Films

Alfred Higgins Production, 9100 Sunset Blvd., Hollywood, California.
American Association of Nurserymen, 835 Southern Bldg., Washington, D. C.
America Beautiful Inc., 99 Park Avenue, New York, New York.
Associate Films, 25358 Cypress Avenue, Hayward, California.

Bureau of Audio-Visual Instruction, University of Wisconsin, 1312 W. Johnson St., Madison, Wisconsin.
Bureau of Land Management, Department of the Interior, Washington, D. C.


A Central Index of Films and Filmstrips in Conservation Education, 1250 Connecticut Avenue, N. W., Washington, D. C.

City Planning Associates, 524 E. McKinley Highway, Mishawaka, Indiana.
Community Improvement Program, Centennial Commission, P. O. Box 197, Ottawa, Canada.

Department of Agriculture, Motion Picture Service, Washington, D. C.
Department of Community Development, Southern Illinois University, Audio Visual Department, Carbondale, Illinois.
Department of Housing and Urban Development, Princeton Television Center, Princeton, New Jersey.

Field Services, National Instruction Television Center, Box A, Bloomington, Indiana.
Fredrick Martin Productions, 15 A. W. 64th Street, New York, New York.

Land Use and Development, National Association of Home Builders, 1625 L. Street, N. W., Washington, D. C.


"Ripples," from National Instructional Television Center, Box A., Bloomington, Indiana. (For lower elementary grades; won the Ohio State Award for excellence.)

National Park Service, Department of the Interior, Washington, D. C.

N. E. T. Film Service, Indiana University, Audio Visual Center, Bloomington, Indiana.

New York State Department of Conservation, Albany, New York.

Pageant Production Ltd., Central Mortgage and Housing Corp., Audio-Visual Aids, Ottawa 7, Canada.

Silvermine Film, 49 W. 45th Street, New York, New York 10036.

f) Periodicals

City. Published by the National Urban Coalition, 2100 M. Street, N. W. Washington, D. C. (bi-monthly.)

Environmental Education. Dembar Educational Research Services, P. O. Box 1605, Madison, Wisconsin.

Environmental Reporter. A recently established information service published by the Bureau of National Affairs, Inc., Washington, D. C.
Close up views of nature, as suggested by these photos, can help the student to realize the significance of the "everyday things" in the environment that one is apt to take for granted.

Above: A cluster of pine cones seems to radiate with motion and energy.

Below: A humble dandelion dazzles us with its brilliant color.
Fig. 155

Close up views of nature, as these photos suggest, can help the student to understand the phenomena of color within his environment.

Above: Rocks show a wide range of tones of the hue brown. Brown is not just "brown"; it can be many things!

Below: A bearberry bush shows contrast of complementary colors--red and green.
The graduate student interested in visual environmental education should become involved with people of all ages; for, as these photos show, with old and young alike, there is no such thing as a "generation gap" when one is sensually involved with the environment.
This section of the chapter suggests an array of visually oriented environmental problems that might be presented to the children. The first half of Part D suggests problems designed for children in the lower grades—-one through four. The second half of Part D suggests problems for children in the upper grades—-five through eight.

VISUAL PROJECTS FOR ELEMENTARY LOWER GRADES:

--Make a map from school to home.

--Plant a school garden.

--Sketch the earthworm.

--"Adopt" a local tree that the children can study through the school year. They can sketch it, paint it, photograph it, write a poem about it, make a tape recording about it, measure its growth and so forth.

--Count the number of automobiles on the way to school.

--Design and build bird houses.

--Observe the flocking behavior of birds, their daily movements and their feeding patterns.

--Clean up the school's yard.

--Start a bulletin board of pictures showing local polluted areas.

--Place water in a jar and proceed every day to add refuse to it. Observe the water daily as it becomes polluted and odorous.

--Try growing plants in different soils—-some in good soils—-some in poor soils.

--The children might count the litter they see beside the street every day while riding on the school bus.

--Do a study of the disposal practices of the children's families.

--Collect, label and display species of seeds.

--Identify types of leaves through their shapes.

--Stake out a very small area on the school grounds and then count the numbers of different insects, plants and stones in a given area.
--Sketch the ways in which we use water at school, at work, at home, at play.

--Study bird varieties on a class field trip.

--Maintain a "discovery box" in which different unknown items are discussed and identified.

--Conduct a nature scavenger hunt. Sketch the objects after they have been found.

--Observe and sketch the life cycle of a frog.

--Show how various animals use color to conform to nature's coloration.

--Sketch an eco-system.

--Paint a picture of the monarch butterfly.

--Discuss the ways in which nature is constantly changing visually through floods, earthquakes, soil-erosion, hurricanes and so forth.

--Make crayon drawings of life in the desert.

--Discuss how people waste things.

--Discuss the beautiful things about their town or city.

--Show the children pictures of animals that are now extinct.

--On a field trip collect small objects from nature such as pods, seeds, a leaf, a burr and so forth. Back in the classroom apply ink to the surface of the object and print the object several times on a piece of paper or cloth.

--Students are to bring an object from nature into class and pass it around so that everybody has a chance to feel it. Then, the students express in crayon "how the object feels." Some objects the students might bring in are: kittens, frogs, turtles, mice, vegetables, stones, flowers, branches, snowballs, plants and so forth.

VISUAL PROJECTS FOR ELEMENTARY UPPER GRADES:

--Visit local historic buildings and sketch them on site.

--Design anti-litter posters and distribute them throughout the community.

--Organize a Junior Audubon Club.

--Develop a nature trail near the school.

--Make visual studies of types of soils and top-soils.

--Make a diorama showing local conservation practices.
--Have the students evaluate the environment of their own classroom.

The remaining projects are more complex in presentation and therefore are explained in greater detail.

**SUBJECT:** Proxemics, furniture arrangement.

**OBJECT:** Develop an awareness of the fact that objects in space need not be "fixed feature space" but can be moved and changed at will.

**MEDIA:** Colored paper on graph paper.

**MOTIVATIONAL OUTLINE:**

1) Student is to choose one room in his home that he would like to study.

2) The student is to draw the shape of the room twice on two different sheets of graph paper. He is to label one paper "before" and the other "after."

3) Next, the student is to cut out shapes of furniture from the colored paper and arrange them on one paper as the room presently exists.

4) He is then to rearrange the room on the "after" paper according to the guide presented below.

The Guide:

--What activity will take place in the room?
--What furniture do you really need?
--What objects act as "dust-collectors" and trinkets?
--What part should be left open for traffic circulation?
--What space is wasted by placing furniture on angles?
--What space is wasted by leaving a few inches of unused space between pieces of furniture?
--How can the lighting fixtures be utilized for the best lighting effects?

5) Relate the content material of the chapter on proxemics to this project but rearrange the material according to age level.

6) Explain to the students the use of architectural symbols: especially the ones that they will need to know for this project--for example:

- wall
- three windows
- door
- stairs
SUBJECT: Environmental puppet shows

OBJECT: To give older students the opportunity to practice teaching environmental concepts to younger children.

MEDIA: Puppets

MOTIVATIONAL OUTLINE:

1) The class of students is broken down to four or five subgroups.

2) Give each student the name for a puppet which he is to design such as Mr. Litterbug, Miss Perfect-Computer, Mrs. Smog, Mr. Wastemaker and so forth.

3) From the given types of characters, the group has to write a puppet play, practice it, and present it to the younger students in the school.

4) A puppet stage can be built from an old refrigerator carton.

SUBJECT: The local environment

OBJECT: To make students aware of the physical environment surrounding them.

MEDIA: Mural (using tempera paints)

MOTIVATIONAL OUTLINE:

1) Using slides that you have taken from the local environment around your town or city, flash quick images onto a large piece of brown wrapping paper that has been adhered to the back wall of the room. Be certain that the images last only a split second and move the projector's image all over the brown paper when you are projecting the slides. A group of students is to be painting with tempera colors all the time that you are projecting, they will be painting right over the image. When you stop projecting, they can finish the mural from imagination. This experience should give them a strong feeling for the images of their town or city.
SUBJECT: Environmental stress

OBJECT: To make the students aware of the fact that the quality of the physical environment is a determinant factor in creating mental health.

MEDIA: Bas-relief sculpture

MOTIVATIONAL OUTLINE: 1) Discuss those factors that create nervous tension and stress, such as visual pollution, traffic jams, high decibel level, supersonic booms, lack of fresh air, poor transportation facilities and so forth.

2) Have each student bring into class any small objects that remind them of the expression: "up-tight." With a wood glue, they are to adhere these objects to a flat piece of cardboard or wood. Finally, they are to paint the whole form with white paint to create a bas-relief.
Drawings: Courtesy of fifth grade, W. Yarmouth Elementary School, Cape Cod, Massachusetts.

Above: The children "adopted" a tree on the playground and studied it using a variety of sensual media.

Below: A close-up view of a segment of the same tree.
Fig. 158

"Over Population" -- Grade two

Fig. 159

"How it feels to swim in clean water"
Grade one

Even very young children can be made sensitive to their environment.
Drawings: Courtesy of the children of W. Yarmouth Elementary School.
The fourth grade children at W. Yarmouth Elementary School, Cape Cod, Massachusetts visualize the thought that: "One needs to keep physically healthy to enjoy one's physical surroundings."
The fourth grade children at W. Yarmouth Elementary School, Cape Cod, Massachusetts express the phenomena that:
Above: Man is capable of building beautiful forms,
Below: Man is capable of destroying his own habitat--this planet earth.
SUMMARY

This paper explored the use of vision as the primary mode of perception employed in the teaching of the fundamentals of environmental education. This concept was referred to as "visual environmental education"; and the field was investigated by searching into its purpose, methodology and content.

The Purpose:

The purpose in investigating the field of environmental education was based on the findings that:
1. The quality of the American environment is rapidly deteriorating.
2. Care for the environment is not being taught in the schools on a serious level.
3. Educators and college students are not being adequately prepared to meet the challenge of one and two above.

The purpose in using vision as a primary mode of perception in teaching environmental fundamentals is based on the findings that:
1. With the "new generation," experiences and non-verbal dialogue rank high as communication media.
2. Visual methods reduce meaningless word responses, and help students to move directly from the abstract to the concrete.
3. In the future, man must control his physical and visual surroundings for sheer survival.
4. Visual influences are a strong factor in determining the expression of behavioral-effect.
5. The visual environment influences latent and untapped human potentials.
6. The use of vision as a "way of thinking" is a new approach; and therefore, literature in this field is sparse. This paper attempted to supplement this scarcity.

7. Resource-material for the educator within this field is almost non-existent; and therefore, this paper was compiled as resource-material for the educator's use.

**Methodology:**

Ten diversified environmental areas were investigated:

1. The Intimate City
2. Organic/Inorganic Relationships
3. A Case Study in Environmental Analysis
4. A Case Study in Proxemics
5. The Human Habitat as Visual Form
6. Small Urban Spaces
7. Solving City Problems
8. The Quality of the Man-made Object
10. The Elementary Curriculum--A Guide for the Graduate Student

The data of each of these ten environmental areas were presented using the following methodology:

1. Verbal Synopsis--A brief statement about the purpose of the chapter.
2. Verbal Content--Verbal resource-material; concepts and thoughts about the nature of the given area.
3. Visual Content--Visual resource-material; visual concepts and thoughts about the nature of the given area.
4. Visual Projects Verbalized--Suggested student projects related to the content, to be solved visually by the student in the studio-course situation.
5. Visual Projects Visualized--Examples of visual results of the projects; that is, of number four above. Photographs and Xerox of student work.

**Content:**

The most significant findings from each chapter are summarized as follows:
Chapter I. The Intimate City

This chapter explored the elements that make a city an esthetic place to live. It was found that imageability, amenity, and diversity are the major components of the intimate city. Imageability referred to the back-logging of visual images that a person absorbs through his direct experiences with the city. Amenities referred to the "pleasantness of sensory input"—to the personality and style of the city, and diversity referred to the combination of mixed uses that creates vitality and life.

The tools used to create intimacy were found to be such design elements as the microscale, deflection, "a sense-of-place," and containing—to mention just a few of the many design elements that were explored and visually illustrated.

Chapter II. Organic/Inorganic Relationships

This chapter explored organic/inorganic relationships for the purpose of finding visual links that might be used by man to build visual structures and objects that are in harmony with the organic self. For this reason, two organic structural systems were investigated:—the crystalline system, and the articulated system.

The crystalline system explored the concepts of the modulus, modules, the basic unit, and mutations of the total system. The articulated system was explained in terms of skeletal structure and in terms of its distinctive differentiation from mass as form.

Visually, this chapter explored the parallels and similarities that exist between nature's object and the object made by man.
Chapter III. A Case Study in Environmental Analysis

This chapter presented a specific and concrete example of an environmental analysis. The town of Deerfield, Massachusetts was surveyed using the methods of research, personal interview, and through personal use of vision as the primary mode of sense perception. Using these three methods, all possible facets of the town were surveyed. These facets include the cultural and physical components such as topography, history, Town Report extracts and interviews with town's people.

A verbal environmental survey included a study of pollutants, traffic control, greenery, places for people, street furniture, civic art, points of references, and historic buildings. Recommendations for change were also made.

The visual environmental survey included a collection of maps, sketches of the microscale, sketches of reconstructed buildings and evaluative photographs of various visually polluted areas.

Chapter IV. A Case Study in Visual Space Usage

This chapter introduced the educator to the new field of proxemics by presenting general factual knowledge about the field. The term "proxemics" was defined and the various types of space usage were described, such as types of body space, types of territories, types of distances, sensual use of space, fight and flight as spacial concepts, and cultural use of space.

The investigation then proceeded to develop a structural-model for use as a guide in the event that the educator would like to develop a similar study. For this model, a survey was presented of the use of space in one building, on the campus of the University of Massachusetts. This model-study consisted of personal visual observations such as seating arrangements and space-use. Personal interviews were another method
of acquiring information for this study.

The visual part of this chapter shows flow charts of space usage and conversation flows. Aerial views of the area are also illustrated.

Chapter V. The Human Habitat as a Spacial Form

This chapter searched into the various ways in which mankind has used proxemics to design his living environment within the network of a given culture. The culture chosen for this study was Greece. A structural-model outline was presented and applied to Greece; but the outline could be applied to any culture or civilization.

Greece was first studied as a "whole spacial form" and then as a "segmented spacial form."

As a "whole spacial form," Greece was viewed through the eyes of its physical city-plan.

As a "segmented spacial form," Greece was viewed through its segmented civic buildings such as temples, gymnasiums, treasuries, tholos and theaters.

Visual examples of the "whole form" and of the "segmented form" illustrated the verbal content.

Chapter VI. Small Urban Spaces

This chapter investigated the potential for design inherent in the small urban area, and presented a rationale for the designing of small spaces. It examined the principle design elements that seem to occur consistently in the successful designing of small urban spaces such as the functional use of the space, a sense of enclosure, and points of reference within the space.

Some types of urban spaces that could be redesigned were discussed such as roof-tops and commercial sites. The educator was alerted
to some of the basic problems that might be encompassed in the designing of urban spaces such as acquiring land, maintenance, and community involvement.

Chapter VII. Solving City Problems

Four urban problems of a physical nature were evoked in this chapter. The four problems were visual pollution, inner city congestion created by automobiles, housing the nation's minority groups, and creating living environments for increasing numbers of people. Each one of these four areas was investigated by presenting factual information about the problem and then suggesting alternate and diversified solutions to the problem.

Visual pollution was identified as the honky tonk landscape created by uncontrolled signs, littering and lack of environmental laws.

Inner city congestion was defined as the glorious system of freeways that spill too many autos into the heart of the city, tearing the city to shreds and destroying the communities' "sense-of-place."

Housing the nation's minority groups through "housing projects" was identified as the process of replacing slums with more slums, displacing people, cutting off people from the life of the city and symbolizing deviant behavior.

Creating living environments for increasing numbers of people, it was found, means stressing cluster developments rather than single family housing and concentrating on the development of planned unit developments and new towns.

Chapter VIII. The American Artifact

This chapter focused on various views of the American object. The artifact was defined in terms of its extensions of man's body. A
contrast of the machine-made object with the man-made object clarified the two types of artifacts that humankind is capable of producing. Artifact consumership was accounted for by delving into the strategies used by our economy to increase the G. N. P.; some of these were found to be the "throw-away spirit," planned obsolescence and planned chaos.

It was found that Americans have rather strange ways of relating emotionally to their artifacts such as using the object to express social status, and viewing the object as a "trade-in-value." Some of the sources of ugliness inherent in many objects were found to be created by our pecuniary economy, and by using the excuse that we are still a frontier nation. Attitude formation was discussed as an important contemporary factor in the evaluation of contemporary artifacts. The education of the consumer and ways of uplifting the quality of the object were discussed as methods of improving object-consumership in the future.

Chapter IX. The Visual Environment Through the Fine Arts

In this chapter, vision was used as the primary mode of perception to develop sensitivity toward the environment, whereas in all previous chapters vision was used in order to actually change environmental conditions. To phrase it another way, in this chapter the student uses vision to subjectively express present environmental conditions so as to relate his feelings to us about the physical environment as it exists today. In the first eight chapters vision was used to simulate futuristic environmental conditions so as to build a better tomorrow.

Ten studio-projects were presented to the educator. These projects related the use of the fine arts to environmental issues so as to develop the student's sensitivity, sharpen his sensual perception, and enrich his way of viewing the environment. The projects were planned for students in
higher education.

Photographs of paintings by the writer help to illustrate some of the unique ways in which nature might be viewed.

Chapter X. The Elementary Curriculum

Chapter X suggested ways in which environmental education graduate students might involve themselves in the environmental education programs of the elementary schools. This goal was attempted by surveying the problems involved in organizing an environmental education "drop-in-center"; presenting teaching strategies, listing current resource-references, and by suggesting some projects for elementary school children.

The photographs of intimate aspects of nature might help the educator to motivate the children when he is presenting some of the projects to them.

To condense this summary into a synopsis of one paragraph might be of some help to the educator who feels muddle-headed by the great range of the interdiscipline material that must be handled within the scope of environmental education.

A Synopsis:

This paper explored the use of vision as the medium to be used in the teaching of the fundamentals of environmental education. Resource-material for use by the educator in higher education was compiled using ten diversified environmental areas. The data of the ten areas was presented in both verbal and visual forms. This data is intended to be used by the educator in a flexible and creative manner. This resource-material is presented in a multi-discipline manner for the purpose of clarifying values necessary to understand the interrelatedness among man, nature,
his culture, and his bio-physical development in order to enhance man's quality of life.

Suggestions for Extended Study:

What about the future of visual environmental education? The field for further investigation remains wide open, for only the ground-floor has been built through this study. One could take any one of the environmental issues mentioned herein and use vision to convey the fundamental concepts. For example:

--An environmental analysis of school buildings within your community.
--A survey of visual barriers around your communities' parking lots.
--A survey of civic art in your community, and designs and plans for investigating projected civic art.
--A study of night-lighting in your city.
--A visual curriculum for preschool children.
--Designing urban space for and by senior citizens.
--Relating Egyptian microscale to your home town.
--The objects which the housewife uses--and what she really wants. (Based on interviews.)
--A case study of war orientated civic art (with plans for peace orientated substitutes).

Perhaps you are not visually orientated; maybe you are a musician and love sounds! Then take all of the issues referred to herein and substitute the word vision for sound! See what happens! Use any sensory media. But, let us learn anew to use our senses as well as our minds; for it is only through the media of our sensations that we can truly know, care for, and love our environment.
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