MANAGING FORM:
STUDIES IN CORRIDOR AND CONCESSION AREAS AT M.I.T.
AND THEIR IMPLICATIONS FOR CITY DESIGN

By

Robert S. Schwartz
B.S. Arch., University of Cincinnati (1965)

Submitted in Partial Fulfillment
Of The Requirements For The
Degree of Master In
City Planning
at the
Massachusetts Institute of
Technology
August, 1968

Signature of Author

Department of City Planning, August 19, 1968

Certified by

Thesis Supervisor

Accepted by

Chairman, Departmental Committee on Graduate Students
DISCLAIMER

Page has been omitted due to a pagination error by the author.

( Page 50 )
MANAGING FORM:
STUDIES IN CORRIDOR AND CONCESSION AREAS AT M.I.T.
AND THEIR IMPLICATIONS FOR CITY DESIGN

Robert S. Schwartz

Submitted to the Department of City Planning on August 19, 1968
in partial fulfillment of the requirement for the degree of
Master in City Planning.

This thesis investigates the potentials and implications
of the activity I've called managing form. The concept of form
managing stems from a desire to continuously guide the properties
of the physical environment as its use and users continually
change. Acting in this way calls for a realignment of responsi-
bilities. The title itself implies the needed mixture of
managerial and design abilities. Besides expanding his abilities,
a manager of form must widen his area of concern to include all
aspects of the physical environment. I've labeled the facets of
this new role: coordinator, implementor, designer, monitor,
custodian and guide.

I conducted a series of experiments, interviews and
observations primarily in M.I.T. which generated a series of
hypotheses that I used as guidelines for a personal attempt at
managing form in a concession area at M.I.T. This effort tested
and generated hypotheses on its own. The hypotheses revolve
around evaluations of various techniques for managing form as
they relate to patterns of use.

After suggesting changes in M.I.T.'s administrative system
for managing form, I describe some applications of this study
for city design.

Some specific issues which are discussed are the need to
relate to users' expectations and socio-political climate, the
sensitivity with regard to timing and impact which becomes
possible, the value of different sorts of communications systems
and linkages as part of the management process, techniques and
relationships within facets of the role and evaluations of
various situations as form is managed
by users or specialists.

Although conclusions and criteria are generated, this is
primarily a record of a combination of research and action. It
is not meant as a definitive proof but as an exploration.

Thesis Supervisor: Kevin Lynch
Title: Professor of City Planning
ACKNOWLEDGMENTS

I would like to express my appreciation to those I talked to in the M.I.T. offices for their courteous treatment and kind support. Especially helpful and straightforward in discussions were Mr. Bob Cavenaugh of the Planning Office, Mr. Combs of Physical Plant Design, Mr. Ted Doan of Physical Plant Maintenance and the foremen of the Electrical, Carpentry and Painting shops.

Al Singer of the Student Activities Council, several students in the Department of Architecture and Harry Berg of Harvard's Fogg Museum were helpful and indulgent in discussing their techniques for managing form.

Many people in the area where I worked deserve credit for their interest and support. Professor Irvine Chairman of the Chemistry Department; Rose, an employee of A.R.A.; and Phylis and Norman, employees of M.I.T. were among my most helpful allies in the field. Ned and Yolande Alfeld and Hans, Anna Marie and Stephanie Blieker were weekend painters with my wife and I and a few graffiti artists. Their work was sincerely appreciated.

I am singularly indebted to Professor Anderson of the Committee on the Visual Arts for his support of my work, to my advisor, Professor Lynch for his continuing support and guidance and to my wife, Carol, for her typing and encouragement.
TABLE OF CONTENTS

SECTION ONE: MANAGING FORM DEFINED.............................. 1
I. THE CHANGING ENVIRONMENT...................................... 2
II. MANAGEMENT VS. DESIGN PROCESS................................. 3
   A. PROBLEM SOLVING: GUIDING VS. SPECIALIZING.............. 3
   B. AUTHORITY: DIRECT VS. INDIRECT.......................... 4
   C. INFORMATION: CENTRAL VS. PERIPHERAL.................... 4
   D. TIMING: SENSITIVE VS. CRUDE.............................. 5
III. REALIGNING RESPONSIBILITIES.................................. 5
    A. FACETS OF THE ROLE.................................. 6

SECTION TWO: SOME EXISTING PATTERNS OF MANAGEMENT.......... 8
I. A SEMINAR SETTING............................................... 9
II. M.I.T. HALLS.................................................. 14
   A. INERTIA................................................. 16
   B. EXPECTATIONS.......................................... 17
   C. INDIVIDUALS AND SMALL GROUPS OF USERS
      (INHIBITIONS AND ADAPTATIONS)........................ 18
   D. COMMITTED ON THE VISUAL ARTS............................ 19
   E. THE STUDENT ACTIVITIES COUNCIL
      (INCREMENTALISM)...................................... 22
   F. THE ARCHITECTURAL STUDENTS
      (GUERRILLA ACTION).................................... 25
   G. M.I.T. OFFICES (BEAUCRATIC MACHINE).................... 29
III. MUSEUM DIRECTORS AS AN EXEMPLARY CASE...................... 34
APPENDIX.......................................................... 102
I. PHOTOS......................................................... 103-107
II. BOX CHANGE SEQUENCE.................................... 108
III. SAMPLES OF COMMENT PAD AND RECORDS OF ACTION.................................. 109-117
# TABLE OF PHOTOS AND DIAGRAMS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar Settings</td>
<td>11</td>
</tr>
<tr>
<td>Administrative Structure in M.I.T.</td>
<td>31</td>
</tr>
<tr>
<td>Time Charts: Use of Concession Area</td>
<td>40</td>
</tr>
<tr>
<td>Corbu's Modular Men Sitting on Boxes</td>
<td>44</td>
</tr>
<tr>
<td>Typical Patterns of Individual Rather than Environmental Adaptation</td>
<td>52</td>
</tr>
<tr>
<td>Seating Patterns</td>
<td>64</td>
</tr>
<tr>
<td>Managerial Roles Between Power &amp; Users</td>
<td>67</td>
</tr>
<tr>
<td>Comparison of Different Modes of Action</td>
<td>74</td>
</tr>
<tr>
<td>Photos: Use of M.I.T. Halls &amp; Stairwells</td>
<td>103</td>
</tr>
<tr>
<td>Photos: Activities in Concession Area</td>
<td>105</td>
</tr>
<tr>
<td>Photos: The Concession Area</td>
<td>106</td>
</tr>
<tr>
<td>Photos: M.I.T. Visual Connections &amp; Separations</td>
<td>107</td>
</tr>
<tr>
<td>Photos: Change Sequence of Boxes in Concession Area</td>
<td>108</td>
</tr>
<tr>
<td>Samples: Record of Changes in Concession area 6-13</td>
<td>109</td>
</tr>
<tr>
<td>Sample: Record of Changes in Concession area 6-14</td>
<td>112</td>
</tr>
<tr>
<td>Samples: Comment Pad</td>
<td>113</td>
</tr>
<tr>
<td>Sample: Record of Actions in Concession area 6-19</td>
<td>116</td>
</tr>
<tr>
<td>Sample: Record of Actions in Concession area 6-28</td>
<td>117</td>
</tr>
</tbody>
</table>
SECTION ONE
MANAGING FORM DEFINED
I. THE CHANGING ENVIRONMENT

"Fixed environments exist for unobservant people or for people who have chosen to define environment as those features of a place which are unchanging."

Serge Boutourline in "The Concept of Environmental Management"

The physical environment, like all environment, is constantly changing. The users of a place change. Different sections of environment become more or less useful for those in it. They change some things to suit themselves. They see things differently, even if objectively all is the same. The weather changes. Technology changes which stimulates other kinds of change. Things wear out and need repair. In short, life is a varied and continuous action in which physical environment plays a part.

Most people engage in a dialogue with the physical environment as part of their daily activity. Those who control small areas or buildings often act as continuous managers of all the aspects of the physical environment in their jurisdiction. Those who deal with designing cities or parts of cities have seldom looked at their work in this way. City designers continuously do statically conceived or, at best, staged plans to achieve statically conceived of objectives. This thesis starts with the assumption that designers and especially city designers should conceive of their work as managers of physical
environment. Through a series of studies, I have attempted to find out what the implications of that assumption are.

II. MANAGEMENT VS. DESIGN PROCESS

The continuous nature of the management process is inherently different from the design process.\(^5\) A brief description of these differences will indicate the areas and direction in which designers will have to change.

A. PROBLEM SOLVING: GUIDING VS. SPECIALIZING

Managers are continuously committed to an organization or place. They are constantly dealing with the many different kinds of problems and opportunities which occur in relation to their area of interest. The constant and immediate nature of these problems forces managers to jump from one area of concern to another as they become more or less critical in terms of the objectives he is pursuing.\(^6\)

Designers usually attempt to reach their objectives by synthesizing all related problems and potentials they can conceive of from their one point in time.\(^7\) Creating plans based on this synthesis is the designer's specialty. A manager may perform these activities, but he does many others as well and does not specialize in any one.
B. AUTHORITY: DIRECT VS. ADVISORY

One reason why managers can effectively work in many different areas is that they have the authority to change the pattern by which resources are being allocated. As problems or potentials arise, appropriate action can be taken. Managers can manipulate the work of designers along with other inputs.

Designers suggest patterns of resource allocation to those with direct authority. These suggestions are usually formalized and recorded plans. Everyone wants to be treated fairly at any one point in time, and so plans usually end up with a uniformly balanced compromise rather than a series of uncompromised actions which might be more effective for all concerned. Remoteness from power leads to plans which often have objectives that are generalized to a point which makes them meaningless when related to the often unpredictable future toward which they are directed.

C. INFORMATION: CENTRAL VS. PERIPHERAL

Direct authority puts managers in a central position related to the flow of information. This centrality gives an increase in power through access and control of information.

Designers are not central to the flow of information. Many decisions and actions are based on information the designer never sees because he is not thought of as necessary or relevant to the area of study. Designers gain some power through
their ability to gather and manipulate data in their own area of expertise. They are, however, not at the core of information flow and updating information is a constant problem.

D. TIMING: SENSITIVE VS. CRUDE

Because they are at the center of information flow, managers can be extremely sensitive about timing their actions. They are constantly aware of social, political and economic climate and can hold back or push through projects according to the happenings of the month, week, day or hour.

Designers because they are peripheral often are innovators but aren't sensitive to all the daily pressures a manager feels. Further because they must present formalized plans for the future, timing must be calculated according to predictions or technical feasibility calculations. Although feasibility varies with climate, there is little the designer can do to rearrange his plans as it changes. Because he is not part of the continuous decision making process, plans must be staged in years or months.

III. REALIGNING RESPONSIBILITIES: THE NEW ROLE

Managing form will carry with it some of the burdens and some of the advantages of administrative responsibility. To be effective, one must become more intimately involved with a wider range of interests than designers usually have in deciding what the physical characteristics of a place over time will be.
A manager of form will be concerned with the quality of the physical environment. He will be delegated a certain amount of administrative power in areas related to that concern, and those areas of concern will cover all the actions which form the physical characteristics of the environment. This mixture of power and diversity should add to the designer's usual responsibilities and allow him to act in managerial fashion.

A. FACETS OF THE ROLE

Continuous management inevitably means dealing with many different types of problems. This calls for a wide repertoire of roles and techniques which can be employed when appropriate. They all overlap slightly, have social, political and economic constraints, and can be pursued individually or simultaneously by groups or individuals. Over a period of time no one of these roles can create an environment that will satisfy even its own criteria without the help of the others. The following is a list of these roles briefly indicating the area of concern and the functional linkages.

MONITOR: Monitors observe phenomenon and organize and relay information about it to those who want it, e.g., ombudsman, social scientist. They are primarily linked to the aspect of the environment they're watching and secondly to those who want their data.
DESIGNER: Designers prepare plans for action in accordance with some set of goals, e.g., architects, planners. They are linked to monitors and to those who will implement their plans.

IMPLEMENTOR: Implementors carry out plans as efficiently and effectively as they can, e.g., builders, some public agencies. They are linked to designers and to whatever the critical factors controlling their action are.

CO-ORDINATOR: Co-ordinators relate actions in a place so that they will support or at least not hinder each other, e.g., administrators. They are linked to all others.

CUSTODIAN: Custodians service the physical environment keeping things clean and operative, e.g., janitors, repairmen. They are linked to the environment they are servicing.

GUIDE: Guides give directions and information to users so that a place will be more efficiently or effectively used, e.g., host, teacher, policeman. They are linked to users.

Each of the above is a facet of form management. Each in fact carries with it a range of techniques. The basic problem then becomes one of choosing which role or roles to stress, how to relate them and which techniques to use. Setting these roles in a fixed relationship with fixed techniques doesn't respond to the fluctuation in the environment which brings about the desire for management. The orchestration of this network is as essential as participation in any facet of it for the manager of form.
SECTION TWO

SOME EXISTING PATTERNS OF MANAGEMENT
Everyone manages form to some extent. Just being in a place changes it for others. We perceive places differently and often adapt them at least slightly to our needs. There are many people who could look at part of their job as being a manager of form. Before experimenting in the role myself, I interviewed and observed the way others were consciously or unconsciously managing their physical environment. I found several interesting ideas this way, some of which I tested later as I managed the form of a snack area in M.I.T.

The general research technique I used was not the usual scientific method. Essentially what I did was explore situations that seemed to contain qualities that made them rough analogues of some facet of the subject I was investigating: managing form. Through these explorations I generated hypotheses. Rather than proving them true or false, I attempted to use them as a basis for action. That action in fact indicated which hypothesis seemed most useful and generated many more hypotheses of its own. The research technique is similar to the subject it is studying. I was, in fact, managing the evolution of lists of hypotheses concerned with the management of the physical environment.

I. A SEMINAR SETTING

A class I was attending was too big for the seminar room we were given, and we had to move to a larger room which was not
suited for seminar discussions but for lectures. Everyone felt that we should adapt the place for group discussions. I came a few minutes early to each class; and with the aid of a few others who happened to be there, re-arranged the layout of the furniture. It was the usual student desk-chair, large teacher's desk and separate chair. Illustration 1. page 11 shows the layout before I changed it. Although I was acting primarily as a monitor, watching what happened, I was also acting as designer and implementor of the new layouts each day. I found it easy to control this because no one else wanted to take the initiative. It was easy to observe the group as I was a legitimate member.

The first pattern I used was the typical circle (ill. 2). It immediately became obvious that late-comers were made conspicuous because of the difficulty of getting to a seat without disrupting the group. This problem was easy to solve by making an aisle for late-comers to use (ill. 3). This setup was satisfactory. I decided to try to get the group as a whole to generate a form. My technique for doing this was to set up a form that was clearly intolerable assuming the group would re-arrange it in some way. I set up two aisles of desks two desks deep facing each other with a window at one end and the large desk by the door at the other end (ill. 4). Much to my surprise, people sat down in the arrangement as it was. There was a great amount of discussion about how unsatisfactory it was and where people were sitting, but no one did anything about it.
SEMINAR SETTINGS

1. NORMAL SETTING

2. SEMINAR SETTING

3. SEMINAR PLUS LATE

4. INTOLERABLE SETTING

4A. USERS CHANGE 4.

5. TOLERABLE SETTING

6. OTHER EXPERIMENTERS

6A. USERS CHANGE 6.
The professor sat at the big desk and the seminar began, but people were definitely uncomfortable. Over the first hour people continually edged their chairs slightly until the two aisles were formed into a rough egg shape (ill. 4a). This egg shape seemed better than the circle for several reasons. One didn't feel the pull toward the center and across to someone staring back at you; it made it feel more intimate, and it gave some, but not too much, focus toward the professor who did most of the talking. Those who sat in the chairs which weren't part of the aisles never moved in as part of the egg. 13

I continued arranging slightly more tolerable but far from good patterns, all of which people accepted without edging or suggesting using a better form. Ill. 5 is an example of one of these. Late-comers were put on display, discussion was difficult because of remoteness and the disturbing late arrivals. It wasn't an intimate or chatty setting at all despite an early desire for an intimate place and past examples of better settings; no one was provoked into action.

I doubt that many knew I was behind all these patterns as I usually jokingly evolved a pattern with the early arrivals and sat down while some were still arranging it. Although someone had always been there before me, arrangements never began until I initiated them. In one of our last classes, some people finally started a pattern of their own. Since each day was
different, I assume they wanted to be more unique than all of them. They arranged the chairs into two circles with one chair on its side in one circle (ill. 6 & 6a). No one picked up the chair. Everyone sat down. Those in between the circles moved immediately; but again, an egg shape evolved through slow edging of chairs.

I got several ideas from this experiment. First: there are areas where one can control and manage form merely because no one else is enthusiastic about doing it. Second: only extremes of discomfort or non-functionability provoke action in temporary users of a place. Third: if possible, any action will be in the form of minimal increments. I assume this is because larger scale action requires commitments and leadership, things people wish to avoid for a cause seen as not crucial to them individually. Fourth: interesting and extremely functional patterns can evolve from this minimal increment management when it is done simultaneously by members of a functional unit. Fifth: the functional unit will evolve a pattern best suited for itself but disregarding elements not functionally related to it. This statement is provoked by the lack of concern for the rest of the classroom as part of the total environment for the seminar. Sixth: there is a certain amount of inertia which once overcome will continue until optimal solutions are reached. If one is not part of a group which has overcome this inertia, it is very difficult to change and join even if joining would improve your
situation. (outsiders didn't join the aisle-egg evolution.) The moving group could have stopped at a crude ellipse shape which had been an acceptable pattern before, but they continued shifting until they got to the egg shape.

Because of this experience, I felt I could easily control some areas merely by filling a vacuum, that users would tend not to commit themselves unless they personally (not as part of a group) benefited, that users would probably generate non-integrated patterns and that users would ignore new problems they created for others. My job would probably have to stress the interrelations between patterns different users evolved.

II. M.I.T. HALLS

Before discussing how groups and individuals managed form in the public part of M.I.T., it's necessary to briefly describe the place. A description of M.I.T. varies greatly among different users, but there are many things all seem to agree on. One of them is that the halls are not very pleasant. This entire section on M.I.T. halls is based on my own feelings, interviews with individuals and small groups or group leaders, observations, things written on comment sheets left out by various groups and some things I learned about M.I.T. in general from my later experiment as a manager of form.

The part of M.I.T. I was concerned with is the older complex which is really a megastructural form. It's a series of
interconnected double corridors occasionally punctuated by spatial and activity nodes. Most of the corridors are long and have few windows. They are usually painted dark grey to about seven feet and a lighter grey above that and on the ceiling. The lighting is florescent and the floor is terrazzo. There are often interesting places off the halls such as complex looking labs, but one seldom can see in them from the halls as the doors have frosted glass and are usually shut.

During the school year there is a great crowd between classes for about ten minutes. The building is used constantly for about 24 hours a day all week, but the intensity is less late at night, on weekends, and in the summer. Along with students, there are a good many faculty, staff and workmen using the building plus a large number of visitors of all ages.

This complex has a few clear boundaries that identify the various departments. For instance, the line between building 7 and building 10 is hardly noticeable as one walks down the hall. The numbers of buildings don't run chronologically down the halls but after a while most get to know the general location of each building number and roughly what goes on there. Individual and departmental territory begins behind the frosted doors and hall space and with few exceptions is a no-man's land. A few of the nodes are market places for student activity groups; and because of their space and activity, take on an identifiable character.
Although occasionally intriguing and delightful, M.I.T. deserves its label as a five-story subway, resurrected mausoleum and multi-story basement. Most say it's dreary and needs to be cleaned. All feel the battleship grey must go. While stately and beautiful on its formal exterior, the interior feels old and ugly.

A. INERTIA

Groups, and to some degree individuals and places, have patterns of management. Some groups or individuals consistently operate in a given fashion and some places are consistently used and operated upon in a relatively consistent way. During the period of my observations, most groups, individuals and places did not change unless there was a powerful force of some sort acting on them to create change. It seemed to me that the reasons for change must not only overcome the reasons for no change but also an inertia which is built into any on-going practice. Change, especially radical change, is feared because it creates a sense of insecurity. Most avoid radical changes. Managers of form will have to deal with this inertia in themselves and in others.

Occasionally the groups I studied were in conflict. Occasionally they worked together. Usually they just tolerated each other avoiding contact and change in patterns of action when possible. The following are summaries of the patterns of action, changes, advantages and disadvantages of a few groups operating in M.I.T.
B. EXPECTATIONS

Some public places in M.I.T. are constantly being changed and used by different groups. The most intensely adapted are probably the Mass. Ave. and central dome spaces. Usually the use is modified by objects being put in or re-arranged in an area for a short period of time.

The most manipulated spaces are also among the most intensely used and most inherently adaptable spaces. Although large open spaces give adaptability, there are some smaller spaces which are highly manipulated such as the stair lobby of building 2. All the more manipulated spaces are unique and exciting spatial forms in M.I.T.

These qualities attract those who wish to advertise, direct, educate, or in general contact the public in M.I.T. As more groups get permission to use these spaces, more people expect this sort of action there. Permission is more easily granted as this functional view of the place is accepted. Finally, more groups are inspired to use the place by those already using it and by the increased ease in gaining permission. At the same time, other equally appropriate spaces like the Eastman lobby or the glass link to the library or many of the large M.I.T. stairwells are never used in this way. This is an example of how patterns of use and intensity of change are in fact a function of expectations as much if not more than qualifications. Any manager will have to deal with how adaptable people think a place is and how adaptable they expect to be in terms of how they use it.
C. INDIVIDUALS AND SMALL GROUPS OF USERS

(INHIBITIONS AND ADAPTATIONS)

The users of M.I.T. especially during the summer are a very diverse group. While they manipulate their own spaces behind their frosted glass door windows, they do very little to change the public environment besides making it dirty and wearing it out. This seems, within bounds, reasonable. Some individuals or small groups commit acts of destruction which are often protests against things in the public environment they don't like. Stealing or stoning sculpture seems to be a popular sport along with smashing up candy machines that don't work. Graffiti are present but not abundant. Often people leave boxes, desks, and other large objects or containers out in the halls; but the percentage of hall space used this way is very small. Some people have very regular patterns of use and will move their favorite bench back into its usual position if it's slightly out of line. These same people will change their usual pattern after a moment of surprise if, for instance, the bench is removed or moved far away. Most people adapt their choice of activity and how they will pursue that activity to the space. Students and others eat lunch sitting on counters or standing up, lean on the nearest stable object while chatting with friends and read or study in worse than need be conditions. For the most part, these users are not very demanding when it comes to the physical environment. If asked, they predominantly say they want it clean, painted and
things like ash trays and garbage cans put around. This doesn't mean that they don't appreciate and use things that exceed these minimal desires.

Individuals using a public space are extremely reticent to change things; first, because they are afraid they will do something wrong or be punished; second, because they don't want to be bothered or just don't think of altering the place; third, because they can't see investing any energy in the public realm and fourth, in a sense, they are then watched by all the strangers present. Few people seem to want to put themselves on display like this. For these reasons, most people think it's silly to try personally to change anything in the halls and are amused by anyone who attempts to do so. Few people wish to act or appear foolish in public and this perpetuates and inhibits action even when there is little or no reason for the inhibition other than this general fear.

D. COMMITTEE ON THE VISUAL ARTS

This committee combines faculty and administration and was originally set up in 1966. It was to perform four major functions. All these functions were defined as areas of concern, not necessarily control. They are first a master plan for the visual environment of M.I.T., second, the environmental problems of the main building, third, extra-curricular activities in the visual arts, and fourth, the M.I.T. art collection. Although originally
thought of as a minor function, buying and displaying works of art has been their primary observable effect.

This group is made up of extremely knowledgeable individuals who are interested in the quality of the physical environment. The committee is being radically changed for two reasons both of which stem from the elite nature of the group.

The desire for high quality, the view that students should learn through exposure to the best contemporary work and an underlying view of M.I.T. as a potential patron sponsoring great art all led to a rather dictatorial approach toward action. They were not interested in pleasing the average often mediocre and uninformed taste in art. This provoked violent protests. Sculpture was stolen and defaced and many clamored for less controversial or just less art. This alienation of the mass of users of M.I.T. is one cause of the change of the committee which will in the future officially include students.

The second cause was their ineffectiveness. The master plan concern was channeled through a sub-committee for development and long range proposal. They were explicitly disband because there was no systematic review, criticism, recommendation and/or implementation that developed despite the fact that M.I.T.'s planner was a member of the committee. I noticed that the head of the design division of physical plant was not on the committee. Perhaps the absence of vital links, power and an overly professorial view of their role contributed to their demise.
Those things the committee has done have been of high quality. They have been highly concentrated either in time or space and have been expensive. The balcony lounge, a gift of the senior class, done by them cost about $4,000. As usual, some like it more than others. A few users who didn't know why it was there resented this luxury in a remote lounge while their working facilities were so poor. The art exhibits have been extremely good; and when confined to the gallery, don't seem to offend anyone. I personally feel that the M.I.T. students have shown a singular ignorance in their appraisal of art and in the violence of their reaction. These reactions have forced exhibits outside the gallery to be extremely brief. Limited funds and irate students have forced this group to concentrate its resources in small projects.

The general approach has been and will probably remain one of attempting to implement strategic projects. The recent hiring of Cambridge 7 to do a study on the graphic qualities of the institute is an example of an important one of these long sought strategic projects. In the area of the long range planning, ineffectiveness has eliminated that function. In the area of purchasing art and working with students, a dictatorial style has increased effectiveness in implementation but decreased effectiveness by alienating users. The group has not yet set a satisfactory pattern of action and is in the process of evolving. They are not purposely experimenting with different patterns of action but have been forced to adapt.
The advantage of this type of action is that it provides for the minority who want places and objects of high quality at the forefront of the arts. Provoking resentment is its chief disadvantage.

E. THE STUDENT ACTIVITIES COUNCIL (INCREMENTALISM)

Major student activities on campus are members of the Student Activities Council which has a board and several committees. Membership is decided upon by the board and entitles members to use some university funds and be a legitimate, non-profit university activity which entitles groups to certain privileges. One of the functions of the group is to manage the use and allocation of university space designated for student advertising, display, sales and rooms and equipment for student activity groups in general.¹⁵

The Council is most interested in the nature of its members' activities and their financial reliability. Primarily this means to them that the activity should be desired by a group, not just a few individuals on campus, and that the leadership of the activity is reliable enough to not become an unexpected financial or legal burden. All these reasons are related to the university funds. First, they don't want to give money to individuals; second, they want to give it where it will be effective, and; third, the university cannot sponsor illegal activities or profit making groups.
The management of space is seen as a minor role and really comes down to having a few mimeographed forms on which people reserve space or facilities. There are certain rules such as standard size posters to fit in slots on bulletin boards. I think the group does, however, manage the form of its members' efforts in M.I.T.; but it does it indirectly by suggestion.

Each member goes his own way when building a sales booth or designing posters, but few want to put in much time on this peripheral activity to their central interest. Any advice that will help and cut down work in designing, building, using, and disposing of things is appreciated. Methods of doing things are passed on like a Homeric myth and slowly have evolved into a folk-student art form of which parade floats are the epitome. Students in the peace movement use the same techniques as those running the spring dance. By having the equipment and knowing these techniques, leaders control much of the appearance of all their members' work through informal suggestions and advice.

This group resented the Committee on the Visual Arts; because, in the words of its President, it's a dictatorship. The C.V.A. according to him has an image of good art and isn't interested in students displaying their work. He claims the C.V.A. is interested in the image of the institute as outsiders see it and not how the students can operate in it. I told him I was interested in helping improve their techniques and doing free design work on prototypes for them plus I was going to build
something which was flexible which I hoped they as well as others could use. He was very enthusiastic, and I went before the Council and offered free services along with requesting any desires they had for a device they could use as part of their displays or activities. This put the initiative on them to call me. I never received any calls. I met the President several times afterwards, and he said he couldn't understand why they weren't using this great opportunity. He never asked me for any advice or free help either. ¹⁶

Most of this group are not interested in design per se. The President thought I could help promote activities somewhat like an ad man and wasn't interested in improving the esthetic quality of M.I.T. I have seen a similar situation where merchants in a city have not used free architectural services. ¹⁷ The reason given by them, and by a few I talked to in M.I.T., were that it was too much trouble to contact me considering the immediacy and unimportance of the design work they were doing.

Although posters, displays, booths and other physical parts of student activity have a significant impact on the M.I.T. environment, the work of any one group probably does not. Each group makes its decisions day by day about what and where objects are needed. Many have a rough schedule of events for the year but no detailed plan of implementation. Control comes more through internal advice and accepted techniques. They operate like incrementalists. Individual groups have a tremendous range of
choice but usually go the standard road. As incrementalists, they create solutions to the problems they see but ignore much of the results of their work which does not directly affect them. This type of action doesn't respond to problems which don't immediately affect a group and is slow in recognizing and responding to new types of problems which do affect them. The advantage of this system is that each group feels it has the freedom to act and represent itself in accordance with its own ideas. This allows interest groups to grow and develop in their own way. Naturally, they complain when management appears to come from outside their organization. After all, they say, the university is for the development of individuals and groups of students, isn't it?

F. THE ARCHITECTURAL STUDENTS (GUERRILLA ACTION)

Several senior architectural students band together to do their thesis. They decided to form themselves into a group that could immediately respond to architectural needs rather than going through the usual design and implementation process. When Martin Luther King died, they amazed everyone by building overnight a huge display which incorporated elements that allowed passing people to comment or commit themselves to whatever degree they wanted in relation to King's causes. The whole thing had a tone of mourning about it mostly because of black pennants strung across the mall and over the entire exhibit. The next thing they did was to clean, paint and build some furniture in a snack area
in M.I.T. all in two nights. They had several generations of predecessors who had built semi-clandestine structures in brief periods of time in the area which the architectural department used for studio space.

The clandestine structures in the architectural department had finally been recognized as legitimate this year and the whole department spent several weeks remodeling and rebuilding their studio space. A faculty member who was part of a group planning an anti-war ceremony rechanneled his efforts and got $1,000 worth of university credit for a display when King died. This was a big break through for the students because it meant the university was giving them recognition and power. The King exhibit was strictly temporary; but then through the Committee on the Visual Arts, they got permission and money to pull their raid in a snack area.

Timing and support are critical facets of this guerrilla action technique. A calamity helped them cut through red tape and skepticism that would have prevented them from doing anything of that scale at any other time. The urgency and the desire to give expression to a widely held emotion intensified through shock along with faculty support swung the usual slow-rolling machine into instantaneous action. The upper-level executives didn't have to worry about accusations of not being fair because sentiment was clearly on their side. This allowed for fast decision making and was supplemented by a dedicated crew who worked
hard and were mobile and flexible throughout the construction, maintenance and demolition process.

Guerrillas in war depend on popular support, are highly mobile, strike at strategic points and disappear when battle is not profitable. These students were acting in much the same way and have been recognized as such by many people in the university. They have worked primarily in areas which are their own (studios) and in public areas which are in their territory (snack area). The King exhibit was obviously temporary. Over a period of time, however, like guerrillas, they are extending the area or degree to which psychologically, if not in fact, they control. The snack area raid had the feeling of being something the elite didn't like, and so a force was sent to attack. By taking matters into their own hands at crucial points, the faculty and students of the department of architecture have gained a strong voice in managing the form of their environment. The architectural students and faculty control the janitorial and maintenance services (painters, electricians, etc.) more than most other departments. This is true partly because this department is interested and others aren't and partly because they have demonstrated that it is relatively safe to work with them. As their legitimacy increases, it will be harder and harder for the central authorities to operate without thinking of them as partners jointly managing form in this area.
This is an extremely effective technique for managing territory which you occupy with popular support. Most of the users of the area (the architectural department) are part of groups which have at least some members who are sensitive to their surroundings. By reporting to the faculty and commando force, they can either get the university or their own raiders in critical areas to bring about changes they desire. The continuous users of the area are connected to a power structure which is effectively managing the physical environment. Users join or avoid commando actions as they see fit. The crucial point is that it is effective only in one's own territory.

The advantage of this system is the tight link between effectiveness and local support. Squatter settlements throughout the world are examples of people taking matters in their own hands when the authorities in control are inadequate.

Its disadvantages are first that it requires something similar to a warlike fervor or at least deep commitment for it to begin. As far as I can see from this study, it takes a severe calamity or a totally intolerable situation before a group is brought to this degree of caring about their physical environment. I would hope that no system of management requires extremes of intolerability or an existing ineffective form managing force before it becomes operable.

In many ways this group is acting like the students mentioned earlier in the seminar setting, and it has the same
advantages and disadvantages. Along with reacting only to extreme intolerability, they are also not sensitive to the needs and desires of those outside their group and can produce new misfits for other users in an area. Many enjoy the snack area they've done, but there is a large group who were offended. This group is diminishing as people get over the initial shock.

The university really always has the responsibility for the physical environment. The guerrilla architects can only afford to expend energy for limited times in limited areas. Like the Committee on the Visual Arts, they do strategic projects which will, they hope, improve the quality of the M.I.T. physical environment and stimulate other actions toward improvement.

G. M.I.T. OFFICES (BEOUOCRATIC MACHINE)

The offices I will be discussing here are only those that are connected to the administration as staff dealing with the physical environment. I have come in brief contact with many of these, not seen others and dealt on an extended basis with a few. They include under operations and personnel: physical plant and its assorted shop services, maintenance and janitorial services and a design division, a police and control division, supply services, a planning office, and a group in charge of the commissary machines. There are many small committees of groups in charge of special facets of the physical environment of which the Committee on the Visual Arts is an example and many offices
such as the purchasing department which more or less focus in this area. In addition to the offices in M.I.T., quite a lot of work is handled by professionals outside M.I.T. hired on a contract basis. There is a formal pyramid of responsibility, parts of which are interested in the physical environment (see administrative structure diag. 1 & 2 page 31). Those parts interested in physical environment are often not linked in the official heirarchy. Even those officially linked occasionally are not really linked at all.

Responsibilities are allocated and things get done, but coordination is difficult and kept at a minimum. What is going to happen in a given place in the near future is hard to tell because individual departments often have a backlog of things to do which others don't know about. If special work is being done all this is checked out. For most of the university, specialized operators take care of their specialty. Occasionally, for example, pipes get put under light fixtures or paint jobs get messed up by electricians, but often this is rectified by the electricians or painters coming back and fixing up. Little things like this happen, but for the most part everything runs smoothly. The speed with which a job gets done usually depends on the prestige of those who desire it and the urgency of the need.

This system is set up to operate and deal with certain sorts of problems. It's difficult to do a job which requires close
1. ADMINISTRATIVE STRUCTURE OF M.I.T.
   BLACK INDICATES INTEREST IN PHYSICAL ENVIRONMENT

2. ADMIN. STRUC. OF OPERATIONS & PERSONNEL
   BLACK INDICATES INTEREST IN PHYSICAL ENVIRONMENT
coordination or to get a job done for which no mechanism already exists. There are certain standards by which things are evaluated and political agreements about how things will be done. Unexpected events always slow and complicate the usual operation unless upper level management personally supervises the work.

Segmentation, beaurocratic standards and procedures start to become a necessity when one gets into larger organizational groups. Beaurocracy is not synonymous with bad and there are good and bad beaurocrats. Most of the beaurocrats I've dealt with at M.I.T. were sincerely interested in talking to me and helping me make connections that I needed. My attempts at getting money or changing standard procedures usually provoked a cordial stalling or avoidance action unless I had some prestige or legitimacy to back up my requests. Obviously administrators must be hesitant in cases which deplete their resources and are not formally defined as their responsibility. In general, because of my connections as a student and through faculty I found it easy to work with M.I.T. managers as compared with the usual city or Federal agency.

Often, but not always, the results of work processed through the M.I.T. beaurocracy are uninspiring to say the least. Even when good architects like Alvar Aalto are hired, they never do their best work here. One administrator (not in the planning department) blamed this on the previous absence of an effective
physical planning team and said that things will be changing. Another claimed that programatic requirements forced architects to do inhuman work. A third blamed communications and said that those responsible were out of touch with users and maintenance people and so buildings were ill suited to their function and forced others into less than satisfactory patterns of action. Often when responsibility is divided, no one knows when or why the total result occurred and many are dissatisfied. Many students and faculty including myself feel that a lack of concern of management and users has led as much as anything else to our present state. Things are changing as evidenced by the election of a girl architectural student, Maria Kivisild, as President of the student body. She is the first girl elected to that office, and her campaign was based on improving M.I.T.'s physical environment.

One advantage of this centrally controlled loose amalgamation of specialists is its systematic procedure for continuously managing form. It has proven extremely effective for implementation, coordination and guiding in M.I.T. Most of its problems seem to stem from lack of concern with high quality and poor monitoring of the environment. These have led to difficulties in design and custodial endeavors. Most of these difficulties could be labeled as lack of support in cash, spirit, information, etc.
The biggest advantage of this system is its dependability. In many areas such as provision of utilities or garbage removal, people want and need reliability. Managers often spend a good deal of their time holding services constant while the population or some other variables change. This is often the case when there are agreed on standards and the function is not interesting to individuals. People don't want to be bothered with continual changes in these service systems. In this sense, managers are relied on for dependability and consistancy in a changing world.

III. MUSEUM DIRECTORS AS AN EXEMPLARY CASE

Museum directors control or act in a comprehensive sense with respect to the physical environment. They watch to see how people use their galleries. They design and implement changes. They coordinate the use of their space by others. They supervise maintenance, control and teaching efforts as a part of the physical environment they control.

For most museum directors all these processes go on simultaneously, but pressures build in one area and it becomes predominant only to be phased to a minor position when other areas of concern become important. Because of the small size of a museum, it is relatively easy to maintain a loose scheduling system within which the small group in control can operate.

The few directors and assistant directors I talked to used combinations of techniques for any given function. For instance, designs for spatial changes might be roughed out on paper and
modified while being executed and then modified again as maintenance or control problems occur. Each change is evaluated against its larger context. Once a gallery has its official opening which is usually shortly after it is hung, directors seemed reticent to change anything basic. Lighting and furniture are moved around much more freely and constantly than the paintings.

There seemed to be two general things which controlled change rates. They are how easy it is to change and how important the thing changed is. Under ease of change there are a wide variety of considerations. They are first: the length of downtime required for the change; second: the amount of effort it will take to bring about and see through to completion the change; third: how much it will cost and fourth: how it relates to other fixed cycles which are related to it. This last category includes, for example, monthly insurance rates, the timing of loans to and from the museum, the teaching cycle of classes using the museum and the estimated exposure time required for a group of works. These four abstract controls seem pertinent for all scales of work.

How to break down the importance of the thing changed is more difficult but an equal control on action. The more important the element, the less likely it is to be changed or removed. One factor is an object or place's recognition. The more people who know of it and think it's valuable, the more important it is.
Another kind of recognition is recognition given by authorities, that is those who are supposed to know. A second factor is a functional analysis of importance. How crucial is the object or place as an operative element in the activity people expect to undertake in that area? A third factor in importance is the meaning or symbolism of the object or place. If the element under consideration in some way is connected to the aspirations of those using or in control, it will be less likely to be changed. A gallery done by someone the directors don't like, all else being equal, is more likely to be changed. A gallery with objects or spaces which symbolically represent ideas repugnant to users or directors is more likely to be changed.

One recurring comment illustrates how all these characteristics are handled. Most directors referred to alterations of their final designs as things which were necessary for some reason but which "messed up" what they had done. At the same time, I was continually shown and asked how to "fix up" the mess which others had created. Often these others were specialists who were supposedly extremely competent. Individuals or groups set out looking for technical or political potentials for changing others work while resisting change in their own work. Although the controls over change rates seemed clear if discussed by themselves, their influence was not primary but was used to support desires directors had for many other reasons.
SECTION THREE
MANAGING FORM IN A CONCESSION AREA
I. DESCRIPTION OF THE PLACE BEFORE

I picked for my test one of the snack areas in the basement of M.I.T. A.R.A. at that time had the concession and had a bank of six machines, five free-standing ones, a change machine, two counters and a woman named Rose who services and keeps this equipment clean from 7:00 AM until 2:00 PM along with selling various things to eat and giving change. The floor was swept three times a day and washed at night, but it was a grim and grey painted concrete slab. The walls and pipes above were dirty. There were no windows and the lighting and ventilation were poor. There was no place to sit but on the counter.

The free-standing machines were in a larger and slightly better ventilated space. Rose and the counter were in the area with the banked machines which had a ramped floor.

This area was underneath the link between Haydn Library and the chemistry department. During the summer, workmen from shops and M.I.T. maintenance crews, lab technicians, secretaries, library staff, students (a few summer school but mostly chem. grads.) and some faculty and administrative personnel used the place.

Although part of a continuous basement corridor during its busiest half-hours, only 15 of the average of 60 people who use the space would just pass through. The remaining 45 came just for the machines. A few met people by chance and stopped to chat.
The average individual who stopped stayed for a little less than a minute while the average group stopped for a little over a minute. Occasionally two or three people would stay for 10 minutes (see chart on page 40).

People predominantly sat on the counter where it was most stable (over some built-in trash containers) or stood in the corner of the counter near where the extra sugar was kept. These were the people who used the place often or were going to stay. Others who stayed, usually remained at the counter standing often as near as possible to the last place they got something. People who meet usually were carried a little bit by their own momentum; and if they remained for any length of time, they inched toward something to lean on or out of traffic.

For most people, the place was an example of all that is bad about M.I.T.'s physical environment. Gloomy, stuffy and generally dusty, it made the five story basement above look good. One person told me he thought M.I.T. kept it that way so you wouldn't take long breaks. Many people seemed sort of anxious or hurried and would buy one or two things, take a few bites, walk a few steps away and back, then take another few bites and so on. Often people would stay and after a few sips of their coffee, gulp it down or run off. Most, I assume, thought of it as a convenient if miserable place. Few ate lunch there, and it was mostly used for coffee breaks. The place in general seemed to provide little in the way of a refreshing break from
TIME CHARTS: CHANGE OF USE IN CONCESSION AREA DURING SUMMER
--- BEFORE JUNE 13 --- AFTER JULY 4 --- PERIOD OF MEASUREMENT
work. Rose was the only thing that brightened the place at all, but she hated having to spend all that time in there. Several worked in areas without windows and they resented having their break area closed in. One of the reasons I think the university and all concerned allowed and even supported my experiment in this area was because there was little there which anyone could imagine being ruined and because of its obvious need for improvement.

II. BUILDING AN OPERABLE POSITION

It was fairly difficult to establish myself in a position where I really felt I could begin my attempt to continuously manage and improve this place. The processes I went through kept improving that position, but it was highlighted by the actual grant of money given to me for this purpose by the university.

I started out with Professor Lynch's support and suggestions to talk to Professor Anderson who was the head of the Committee on the Visual Arts of which he was a member. Through discussions with these two professors, I developed and got their backing for a proposal of sorts.

While all this was going on, I had been watching and interviewing people in the area. I decided that one thing that was needed was places to sit down and that I would probably try to put in lights and fans and paint the place and add things to
to make it better in some way as I went along. The future was left fairly loose and depended in part on further things I would learn during the initial part of my work.

Since I had to begin by proposing something, and I thought I could further study the activity patterns by putting in and re-arranging seats and the free-standing machines, I developed a set of ideas about what sort of things would be best for me to have. I felt partly from the museum directors criteria they should be cheap, easy to make and easy to move. I knew they had to be proportioned in relation to those uses I could foresee for them but felt I didn't want chairs, couches and tables. First, I thought that they would be too expensive if I got good ones but also I foresaw other uses such as dividing up space or containing and supporting fans and lights as functions for those things I wanted. I also didn't want these objects to be sacred but wanted people to feel free to do what they liked with them. I also wanted them to be sculptural parts of the place when they weren't being used by anyone. Further, I thought that by making them slightly ambiguous looking I could get people to experiment with them and possibly find new uses for them that I hadn't thought of. This was an area where functional linkages were not very tight, and so I thought I could afford to experiment with changing standard activity pattern expectations. Finally, I thought it would increase the flexibility of these elements if they could fit together in many different
ways for many different activities besides being individually multiple use. One further thing was added. Everyone thought safety and some insurance against theft was important. I agreed and finally came up with the boxes illustrated on page 44 and in the photographs. I think they filled most of my requirements although my use of weight and the difficulty in carrying them for long distances made them less movable. Although I did find them piled three high once, it was fairly difficult to stack them vertically. A girl alone probably couldn't do it, but they slid across the floor and were set in different positions easily. I put Velcour on the corners to hold them together if they were stacked or next to each other and the 5/8" plywood was sturdy enough and about the right weight. The finishes, shellacked and waxed wood, were not good enough to stand the punishment they would end up receiving from people's shoes.

I submitted the plans for the boxes and an outline of my experiment to the M.I.T. Planning Department and with the Committee on the Visual Arts backing was told I would get the money. The people in the planning office were helpful, spent much time with me and courteously told me there was no such money available. I then began to devote all my attention to getting funds and finally although I was trying to work on other sources, the C.V.A. pressured the Planning Department into giving me some funds.
CORBUSIER'S MODULAR MEN SITTING ON BOXES
This was a break through point not only because of the cash which I sorely needed, but also because it gave me a legitimate link to all those connected with work in the area. Later several things were done for me free of charge partly because I had C.V.A. approval and partly because I had cash to back up my requests. This cash made some treat me as if a job done well for me would mean more than a favor to a student. At least with cash of my own I could now talk on a basis other than begging with those that had influence. Having the head of the design department in physical plant introduce me to foremen made a lot of difference compared with those I met on my own.

Now I had in affect the beginnings of my role. I'd set up connections in the power structure and among the users, could design, implement and try to coordinate efforts, and would soon learn about the problems of the custodian and guide.

III. DESCRIPTION OF ACTIONS

Thursday, June 13 after covering them with Butchers Wax and gluing and nailing Velcour to the corners, I put the boxes in the larger, well ventilated space according to a rough plan I had developed (see Appendix II). It was 10:30 AM, one of the busiest times. I did this partly because I wanted to talk to people about why they were there.

The head of the Chemistry Department knew about them and let me use a vacant office to store them in. Supposedly the
janitorial staff and physical plant employees knew about them. Rose and I had discussed them at length; she had seen them and was one of my more enthusiastic supporters. Rose, who was to be my chief ally at this crucial moment, was out on strike. Terrible timing for a manager; I should have waited. Rose was there almost all the time and could report roughly on things I missed, but I was anxious to begin.

It took me a long time to learn one of the most crucial of the arts of management, restraint. A designer is never in control except through his drawings and relies on others to use them in the way he sees fit. A manager can make things work according to a preconceived pattern but can benefit by working with the currents. Like a designer, I was over anxious and never saw much of the first manipulation of the boxes. I also was in retrospect over anxious in terms of the time I thought it would take people to acclimate to them and to discover all the ways I had envisioned of using them. I hadn't really thought out the adaptation stage which was necessary.

Some workmen helped me move the machines a little, and I left the boxes with a comment pad on one box. When I returned at noon the boxes were rearranged two high in a solid wall across the space. The plans and photos show the wild rearrangements that kept occurring and my feeble attempts in between at functional patterns. In fact, I was becoming upset because no one was sitting on them. Most were curious and a few were using
them as toys. From a later perspective, this seems as if it shouldn't have been upsetting, but it was.

Teaching or at least indicating the potential use seemed to be my most important job, so I started by just sitting on the boxes myself. When that wasn't too effective, I began talking to people and telling them aside from the comment pad how they could be used. The comment pad was filling up and almost all the people who passed by stopped to read it (see comment pad samples). I had changed the note on the comment pad being more direct about the lounge seating qualities of the boxes and removing the suggestion that this was an experiment in how one rearranges boxes.

The impact of the initial note was hard to change and was bad maneuvering on several counts. First, I said it was an experiment and several people resented that, something I could never remove. Second, I asked for suggestions as to how the place could be improved including some ideas of my own. Some people didn't take this seriously partly because of my suggestions, but mostly because of what they seemed to see as a miserable place not improved at all by these boxes. The boxes didn't have their impact as functional items until later ("What the hell do these boxes represent."). Third, I was suggesting fixing and doing things they really needed in their work spaces. This snack area was unimportant compared with those that spent their working day virtually in a closet in the basement of M.I.T.
The proportions and location must have struck them as absurd ("The micro-lab needs more space get rid of these machines."). See Appendix III. I found later that with specific questions like what color paint do you want or just comment on what's been done, people still write down a wide range of gripes and desires without provoking the resentment that an open ended question did.

In fact, I learned a great deal more from casual conversations, Rose's observations (back after two days out) and overhearing discussions in the place than I did from the comment pad. Everyone read it. Most of them smiled or were even provoked to laughter by it; few wrote in it while others were around. It reinforced what I learned from other sources and was an outlet for some who disliked what I was doing but didn't know me or want to tell me directly.

The most radical changes in the boxes and most comments were done secretively and with a mischievous look. Often the comments written this way were not derogatory or capricious and a few times were merely keep up the good work statements. Several people said, no, when I told them the boxes were to sit on and asked them if they'd tried it. The reason given was usually that they didn't look like they were to sit on or something about them looking or feeling funny sitting out in the hall on bright colored boxes. In fact, it took some time for the boxes to become accepted by the majority; and until that happened, most
people were reticent to use them. The comment pad reading was all right; but writing, moving and sitting on boxes all put people on display in public and made them feel absurd. Few made the big leap. Workmen and young girls did first along with a few others and slowly all were able to do it without embarrassment when the boxes became less notable curiosities through the habit of seeing them every day.

I overheard people suggesting things about the boxes to each other. One said, "I've got an idea, why don't they just leave them here and we'll sit on them." Another said, "We might as well sit on these while they're here...oh yea they're part of that show upstairs and will be gone by September." One architect working on computer programming for the chemistry department said he didn't see how to use them. I saw a woman sort of draping herself over one box and looking at it questioningly. It took about two and one-half to three weeks for this to be overcome. I found during that period that: first, when people learned the boxes were for sitting on they felt strongly that there shouldn't be any wasted by their being piled on top of each other. I had thought they would want the privacy but now was told that the guys at least wanted to see the young girls as they came in. Second, people liked sitting or standing in corners that looked out into the space (see photos). Third, that the comment pad was continuing to be fun for everyone and was operating as a dialogue between users as
DISCLAIMER

Page has been ommitted due to a pagination error by the author.

( Page 50 )
much as between me and them. Fourth, that as before, people sat or stood in the counter area as much or more than on the boxes.

I moved some boxes into the counter area which were then used about as much as the counter. I left some chairs out to see if the boxes were still odd and people would choose the chairs before the boxes. They didn't; they sat on them equally or slightly less than the counter or boxes. I turned the boxes at angles to one another and tried to make them both functional and sculptural. The users and the janitors invariably straightened them out. On the other hand, people would arrange them in patterns which though always at right angles were in my opinion extremely visually pleasing but non functional (see photos). Later I realized that I was being over functionalistic in my view. Often people adapted to and used configurations
that weren't of the best sort functionally. In fact, those who used the boxes without changing them seemed to adapt to whatever the configuration even if very minor changes were all that were needed (see diagram on page 52). Those that did move them often changed the setup radically, more as a game or sport and only seldom for purely functional reasons. The boxes in the corners usually remained partly I guess because many used and liked them there. People who always used the boxes in the same way tended to rearrange them if they were slightly off but did nothing if they were in totally different patterns. The ones that were not "perfect" or right in their placement were the ones juggled and once I no longer felt teaching their functional possibilities
1. GROUP SQUEEZED

1A. MINIMAL EFFORT POTENTIAL

2. DISLOCATED GROUP MEMBER

2A. MINIMAL EFFORT POTENTIAL

TYPICAL PATTERNS OF INDIVIDUAL RATHER THAN ENVIRONMENTAL ADAPTATION
was necessary, the changes were made more often and richer than any one person could have done.

The evolution of ideal partial patterns did not occur in the way I thought it would. I saw a series of problems in the difference between small and large group seating needs and found a compromise pattern but on the whole the function was so loosely defined that there was no need or desire to work toward some ideal form that supported it. There was a sort of running battle between the custodians and cart pushers who moved them against the wall to sweep up or get through and the users who often made little seating groups with hard to sweep places and blocking traffic. This eventually seemed to result in a constant police action rather than a full fledged war when the users stopped blocking off the central space in general and the janitors left the boxes roughly in their positions except over weekends. I tried to tell each side about their opponent and moved boxes myself when I felt one group was hurting the other.

Although I felt there was an endless horizon of experiments and improvements I could make with the boxes, I felt people had adapted and my comment pad had built expectations about other developments. People had asked me to look at the places where they were working and suggest improvements. Others had started discussions about art or the Committee on the Visual Arts with me. Many knew me and were friendly with me. The stigma of being an observer seemed to alienate only a minority.
I felt the timing was just right to paint both spaces. I'd developed local support and knew their desires. The main thing was to do something powerful enough to affect the total feeling of the place. A new pipe had been put in blocking light in the counter space and the electricians had put in a new string of lights. I had prevailed on them to put outlets in the light fixtures so I could plug in lights where I wanted them. This meant I could paint the entire place with little fear that it would immediately be messed up by workmen having to go through a wall or hang new fixtures. I had made contacts enabling me to get all the equipment I needed free and had just enough money left for the paint. I knew the place needed to be brightened and had an idea for a graffiti mural done by the users of the space.

Although everyone was for it, predictably no one in the area wanted to come in on their Fourth of July weekend and paint. I got a few friends together, and in one day we painted the whole area. I had masked off an area on a white wall and painted it slightly grey so that the wall and the grey area were dry for the day of painting. I got small cans of yellow, red and blue paint and left them with small brushes on the counter which was under the grey area. I and those painting with me asked everyone passing by to paint anything they liked within this area if they felt like it. Most didn't want to do it while anyone was watching, but almost all did something. A few went away and came back with friends several times.
The resulting mural was, in my opinion, a tremendous success. People painted "in" jokes like L.S.D. molecular structures or a multiple play on words for those in the chemistry department in "Lamberts Beer Law." (There is a Lambert Beer Law and someone named Lambert in the department who drinks beer.) Others put things they felt strongly about (resistance and peace movement). Others tried to do good artworks or cartoons and others did abstract patterns or tried to make verbal or visual jokes. Most people spaced their drawings out so that the total density of painting is even throughout. Visually I think it's pleasing, but the thing that I like best about it is that it continues growing.

I wanted this mural to be like the comment pad in that it would be something people would enjoy and also could express themselves in a kind of remote rather than personal dialogue. The grey background supposedly defined the limits and later I hoped people would continue to write or draw within its bounds. They have, each seeming to respond to what interests him. There are a few drawings, one abstract pattern, some written comments and four molecular structures that have been added so far (see Appendix I).

I wanted to do several things in painting the rest of the place. First, make it brighter and cheerier, second, bounce existing light off intensely colored (blue, yellow, red) pipes, ducts or sections of wall space on to predominantly white walls
and the boxes. This was because of a strong conservative streak in the group who were against brightly painted and patterned wall surfaces and third, to fragment the painting of the whole space into a series of surfaces responding partly to surrounding form and partly to distant forms hoping this would lead one's eye around, partly camouflaging the space and making it seem bigger. I think I was successful in all these things to a degree corresponding to the order I stated them in.

Most liked the paint job but a few thought it was childish or couldn't say why but just didn't like it. A few thought the mural was childish and most who didn't get any of the "in" jokes or like any given drawing in it didn't think it was very good art. Those who got the jokes, and some who didn't, got a kick out of it. Many said it was interesting to look at. It seemed to fulfill somewhat the same sort of function that advertising does in the subway for some people. It gave them something to look at rather than each other, or especially when first completed, started and was the topic of discussions. Many laughed over added graffiti as they did at the comment pad dialogue.

I experimented with the lights and found that most people were attracted to lighter areas but didn't like to have a light focused directly on just them. For example, the favored corner box was not used when a light was focused on it alone but was used when it and the area around it were washed with light. Rose's sale of sandwiches jumped to about 75 from the usual constant of
about 60 when new lights were put in the counter area. The 60 had remained constant through 12 days, nine of which were rainy; and although it rained on two days following installation of the lights, I doubt that this rain was the cause. As far as I know, all the cafeterias and restaurants in the area were still open; and there weren't any activities other than the usual ones going on, so I assume it was the lights that caused this increase of people eating in the area.

People continued using the counter space at a slightly higher percent of the time than they did the more spacious and better ventilated area. I began asking people why. The most predominant reason given was habit. Others said it was brighter or it felt less like part of the corridor and more like a space occupied by those taking a break, or that it felt more open compared with their lab space or that the recent mural gave you something to look at and was more interesting. The counter area was brighter but was in fact not more spacious. As I've said, the ventilation was worse in there so the heat and smell of the cleanser Rose used was worse. The fact that Rose stayed in there and was very friendly and cheery might have been one reason, but it wasn't mentioned and her vacation didn't seem to affect where people sat.

I think the reason most often given is probably the right one. That is habit. Habits or regularized patterns of behavior are probably as necessary as selective perception. In other
words, just like we can't respond to all the stimuli which bombard our system, we can't continually re-evaluate all of our actions. The inducement for breaking a habitual part of a non-crucial activity like where one sits for a break probably not only has to overcome the inertia created by the originally functional association, but also has to overcome the notion that it's just not worth bothering with. Besides, exploratory action in public puts one on display, something to be avoided. This seems to indicate that the less important of one's activities, and the more habitual, the less likely they are to change. The opposite seemed true of the physical environment. The less important the element, the more likely the change, all else being equal.

The use of the place seemed to have increased greatly; but, in fact, the intensity of use over a day was about the same with an average increase from 60 to 70 during the busiest one-half hour periods. The true increase came in the length of time people stayed. The average individual of those who stopped during the 10:00-10:30 and 2:30-3:00 or 3:00-3:30 break period stayed for three minutes, while the average group stayed for about four and a half minutes partly because they could sit down, but I assume it was also partly due to the place looking better. There's no way of me telling how much affect my action as an observer had. Like the Hawthorne Plant affect, a few told me they enjoyed just coming and chatting with me or Rose about the place. A few who I noticed were regular users of the
place stopped coming at all about a week after I started. I haven't seen them around anywhere, and so don't know whether I chased them away or they left for some other reason. A couple of lab technicians said they liked the place better because more chicks seemed to be coming there.

The ventilation is the biggest problem remaining in the place. Smoke literally stays in a big cloud around those smoking. Perhaps this is a valid allocation of air, but it is a sad indictment of the mechanical equipment in the area. A bigger ventilation system would help, but a glass door to a sunken terrace or at least a few large operable windows are really what's needed. Many of the people who use this place work in the basement without seeing what the weather is like outside or that there is an outside. Many, myself included, have complained that this is a bad condition. Perhaps no windows are necessary to increase productivity in work spaces; but without at least some provision for relief, this condition breeds discontent. One often gets the same shock at five o'clock as one gets from going into a movie on a sunny afternoon and coming out into a rainy night.

Over the period of the experiment, I got several things free of charge. Lights and outlets were put in, but the lights would have been whether I was there or not; the outlets were a little extra. I got some old equipment from the chemistry department and painted it for display or in one case made a floor standing
ash tray. The purchasing department had in storage several things no one wanted. I was given a desk, a chair, a glass and wood storage cabinet, a book case, a wastebasket and a 4' x 6' chalk board. I didn't use all of these; and by the time I got them painted and in the space, I was through with the time I'd allocated for the experiment.

After I began working in this area, I learned that A.R.A. had lost its concession and a new company, Servend, was taking over in August. I am in the process of trying to see and possibly influence their design and insure at least the cleaning of the boxes by either Servend or M.I.T.
SECTION FOUR

SYNTHESIS AND SUMMARY
I. PATTERNS OF USE IN THE CONCESSION AREA

The transition I found myself making during my seven weeks of work was from what was merely a convenience place to a place where you could take a break and enjoy yourself. I found that seating arrangements which undulated from a wall in positions slightly removed from other people and which commanded good views of the whole or large areas were most used. Seats which put people on display or were far away from the usual places where people sit were least used. Release from work through humorous or interesting interaction with other people (along with the provision of facilities for an activity like drinking coffee, that gave an excuse for this) was the primary function of the place.

1. The initial period of adjustment to change took about three weeks. As things continued changing, I think people became more adaptable, but this is hard to tell.

2. Some users expended a great deal of energy rearranging boxes for the first few days in what they took to be a sport. Probably a great distraction from work.

3. Most of the action I provoked was done by users in a mischievous vein even if it was basically constructive in its effect.
4. Users didn't want to waste boxes on what seemed frivolous such as dividing up space even though that function (privacy or separateness) seemed important when their actions were evaluated.

5. Corners had the remote safe and commanding position people liked.

6. Some people tended to stay as close to their last activity as possible, if remaining in the area.

7. As a total group they did not prefer leaning or sitting on any special sort of objects. As individuals or subgroups, they did. Girls didn't sit on the counter. The boxes let girls stay and induced guys to stay.

8. A basic conflict in configuration existed between individuals who liked bench patterns and groups who liked to face one another to some extent. Flexibility did occasionally solve this problem but permanent "L" shapes did also (see diagram on page 64).

9. Individuals or small groups often sat in whatever pattern the boxes were arranged even if crowded or uncomfortable. This was true even when very minor shifts would have rectified the problem. I assume this is because the boxes did not look or feel mobile to them.
LINES OR BENCH PATTERN BEST FOR INDIVIDUALS

"U" SHAPES BEST FOR SMALL GROUPS

"L" SHAPE BEST PERMANENT PATTERNS

"L" SHAPES BEST PERMANENT PATTERNS

SEATING PATTERNS
10. There were some who kept boxes in relationships that they used frequently and didn't like minor changes in them.

11. Some resented it if their favorite sitting place was changed or removed.

12. A fixed ideal pattern never evolved, except in the relation between janitors and users readjusting the boxes.

13. Intolerable patterns for one group were created for others but they provoked little action as the space was not crucial functionally.

14. Individuals were inhibited about engaging in unfamiliar activities in public.

15. Magazines, pens and ash trays disappear very rapidly but the boxes were too awkward to carry far distances (and non-desirable for home consumption?) to be stolen. Fashion magazines were the most popular for reading and stealing.

16. The majority of users liked the place better and the attention given them.

The combination of a new concession and many new users when the fall term starts will probably cause another brief shock and adaptation period.
II. EXPERIENCE WITH THE ROLES' FUNCTIONAL LINKAGES

The links within the facets of managing form were, of course, impossible to examine since I acted as all of them simultaneously. I'm sure they helped and hindered each other as they generated ideas and borrowed time from each other.

I didn't focus much attention on my links with the power structure, but it seemed, predictably, the more the better. The types of connections varied; but the ones which gave me legitimacy and cash, both which are forms of power, were the essentials, while the ones which rendered services or gave help of some other sort for specific projects were less essential in that links of this sort are easy to get if you have legitimacy and cash. One reason why I could gain legitimacy and cash was that I was filling a vacuum in the same way I did with the seminar chair arrangements and that my experiment would benefit M.I.T. in two ways, fixing it up and monitoring activity and supplying information.

To begin, I needed an operable base. This was really a network of connections. The linkages or dependencies described briefly under the definition of the role are an abstract conceptual relation. When I was working, I felt really like the diagonal through a rhomboid net (see diagram on page 67). One part of me was primarily connected to those who had power over, influence on, or the technical ability to modify the place I was
working in. These it seems decreased through my roles as my other side which was predominantly connected to the users in the space grew. All roles were of course equally concerned with given parts of the physical environment. From power structure to users they read: coordinator, implementor, designer, monitor, custodian and guide. I assume the monitor is closest to whatever category is being observed. The placing of roles and configuration of the net might be just my style of operation, but I did get the feeling that this slot between power structure and users was the position in which most managers of form find themselves.

An area I studied in some detail was my relationship with the users. I'll attempt to summarize here points which I feel are illustrated in the basic description of the action and relate them to the previous hypothesis generated from earlier studies.

1. The best communication is direct. Personnel experience is direct and most users appreciate the concern. Without Rose the A.R.A. people would probably have many more demolished machines. Her presence helped temper users' frustrations.

2. Timing was critical in many ways. The local social climate was an important factor in the impact on local users along with the more technical timing problems.
3. The comment pad turned out to be one of the best things I did. Often it was used by people to express opinions about some concept or group as well as to comment on questions asked or work I'd done. I call this type of graffiti the poor man's letter to the New York Times.

a. Its initial impact was strong and lasting. I didn't consider it carefully enough. It was an educative and preparatory device later. A two way rather than one way communication link.

b. It acted as a communications link and an outlet for those who didn't want to talk to me.

c. It acted as a communications device between users who ordinarily wouldn't interact in any meaningful way.

d. It acted as a refreshing break from work. Most all continued reading it and laughing.

e. I learned that simple realistic statements or no questions at all except "comment" brought as interesting a dialogue as other questions without raising unfulfillable hopes.
4. Users would avoid committing themselves to doing any work but would do some kinds of work if asked while passing by, and it is feasible for them to do it. The work should be fun, rewarding, clearly defined, as limited in commitment as possible or easy or all of these.

5. People will avoid working on their free time but don't mind helping out during a working day. One man's work can often be another man's break.

6. Most felt custodial and coordinating work was inappropriate for them to get involved in. They didn't want to be bothered with cleaning, fixing or administration. They did like to talk about each other, say the way things ought to be, give a hand in executing some jobs and to help others use the place, i.e., monitor, designer, implementor and guide functions seemed to have participatory potential for different types of people.

7. Several people asked my advice on fixing up their work places. I was a free consulting service partly because I was convenient unlike my relation with the Student Activities Council. Only those who liked my work or got to know and trust me consulted me.
8. At first, my concern for function inhibited play or sporting use of the boxes which was a legitimate and more sculptural use of them.

9. The mural worked in the same way the comment pad did.

10. Users were not prepared for the initial entry of the boxes. I should have painted first which would have been easier to accept and then prepared them with the comment pad. Painting might have set the stage for the entry of the boxes, but then perhaps the boxes set the stage for a wild paint job.

11. I think some of the inhibitions and resistance to change of people were overcome as the place became unique. This transition changed expectations and actions to some extent toward the well established unique places like under the dome. The whole environment was a symbolic message. I don't know what its effect without continual attention over a long period of time will be.

Generally, much of the success of the whole depended on the appropriateness of a given action as it related to specific individuals or groups. Appropriateness is established partly
through the expectations of those involved and partly through understanding the problems which are related to those expectations.

Often when allies were established, they would back almost anything I proposed. Enemies would oppose any action. There were usually reasons for having an ally or enemy, but often the relationship once formed tended to override minor problems.

If I was in some way responsive to requests even in a trivial way, and, if I could make discussion easy for all concerned, I usually gained allies without greatly compromising my own position.

There was a group who didn't like the game-like quality or increased attention I introduced into the place. A few adopted a whimsical grin and bear it attitude. I'm not sure, but I think a few might have discontinued coming to the place. There were some (three chemistry grad. students) who were openly hostile. No one, with the possible exception of Rose who felt a vested interest in the place, was as extreme in supporting me as they were against me.

The extent of their extremism was really nasty comments to me and minor vandalism directed at the boxes. I was bothered and intrigued by their resentment and more by their desire to deface or hurt the boxes. For me this was a minor example of the same sort of group in M.I.T. that stoned the Calder sculpture when it
was installed or attempted to deface or destroy sculpture brought in by the Committee on the Visual Arts. They clearly have a right to their opinions and when I stopped badgering them trying to find out what those opinions were, they, for the most part, stopped open hostility toward me.

III. COMPARING ROLES

The techniques of operation I've presented are clearly different. The control or power, continuity of action, range of interests, scale and goals of action and linkage and impacts on users were all combined in different ways. The chart on page 74 indicates how these differences varied. Impact is measured in two categories. First, how much of a stir or response the group's work creates among users and second how much it influences users' daily patterns of action.

The chart suggests or supports several ideas. Goals are not linked to techniques of action. The C.V.A., the architects and myself all had roughly the same goals and did some similar projects but did them in different ways. An increase in power means an increase in responsibility. This increase in responsibility or power seems inherently connected to an increase in continuity of action and a wider range of interests. In all cases, power, continuity and range of interests seemed proportionally related. The scale of action was not directly related in this way. Those who attempted innovative activity or unexpected
<table>
<thead>
<tr>
<th></th>
<th>Power</th>
<th>Continuity of Action</th>
<th>Range of Interests</th>
<th>Scale of Action</th>
<th>Goals</th>
<th>Contact w/ Users</th>
<th>Impact on Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIVIDUALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WIDE VARIETY OF GOALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STUDENT ACT. COM.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SELL &amp; PERSUE SPECIAL ACT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM. ON VIS. ARTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IMPROVE QUALITY OF PLACE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH. STUDENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IMPROVE QUALITY OF PLACE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.I.T. OFFICES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MAINTAIN &amp; IMPROVE PLACE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSEUM DIRECT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DISPLAY &amp; EDUCATE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME IN CONC. AREA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IMPROVE &amp; OBSERVE PLACE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPARISON OF DIFF. MODES OF ACTION
MEASUREMENT IS FROM LITTLE TO GREAT IN EACH CATEGORY
activity caused the most stir. These innovative actions on the surface did not seem to affect patterns of action other than a short lived reaction to the surprise. Perhaps something like world view was changed and will have its affect in the long run. I had no way of telling about this other than that some people did grow to like innovations or liked innovative activity for its own sake. My first assumptions were that closer linkage to users would create more of an impact on their patterns of activity because of greater understanding. This wasn't true. Those who controlled activities like the S.A.C. or a group as persuasive as the M.I.T. beaurocracy controlled daily patterns of action whether they were closely linked to users or not because of their functional roles. Close linkage with users makes it possible to do one's job better, but the impact of that job still depends to a large extent on what type of job one is doing relative to the desired affect. I was closely linked to users' needs and desires and this gave me ideas for innovative action which shocked some. Remoteness is not necessarily the cause of shock. A tightening of communications allows one to act with greater knowledge but by no means insure results of any kind. Results depend on how information is used.

The goodness or badness of any pattern of action is harder to measure. Asking how many people like any given project is one way, but users often dislike what experts think is best (as in the case of the C.V.A.) or dislike things which jolt them but
grow to like that same place later. Many said this to me about
my work and about projects done by others which were a shock at
first.

My original reason for studying managing form was that I
felt it allowed for a more appropriate and therefore a better
series of actions over time. I think this was true in my case
because of my wider range of problem solving techniques and
the closer linkage of all those techniques as modifiers and
directors of each other. I could relate my efforts to user
expectations, current janitorial services, available resources,
etc. Others didn't act in this way. The M.I.T. bureaucracy
knows everyone hates the grey walls. They hate them too, and
yet I have seen painters reworking and painting large sections
of hall in the same old grey. This repainting probably came
under the category of patchwork and the painters told me their
orders were to match the existing. Matching the existing was
inappropriate, but the bureaucracy was not sensitive enough to
respond in this particular case. In most cases disconnection
from users and disconnection from other efforts or efforts within
one group caused inappropriate actions. A manager of form has a
tighter communications system, and so at least in this sense it
is better. Managers of form are sensitive to a wider range of
inputs and can translate inputs into action faster and with more
continuity than those using any other technique. I knew that
painting my area was a first order of priority, knew when and how
to do it and could actually get it done.
In my particular case, two things hampered the appropriateness of my actions. One was my limited time as a student. Many more things are left to be done, but I'm leaving school. The second was my choices of where to act and what to do initially. These were wrong because of my remoteness when decided how to start. I should have focused some efforts in M.I.T. work spaces and covered (perhaps more sparcely) a wider area which included at least one public activity node of the type I worked in. The little gem, if it was a gem, in a sea of drabness was needed; but I think a demonstration on a larger scale perhaps by a team of students would be more appropriate as a test and in affecting the quality of M.I.T. Many users felt my work was nice but irrelevant. I've already noted that the boxes done first might have been wrong and that my original comment pad certainly was.

IV. THE ROLE AND RELATED ISSUES

I came up with the categories: monitor, designer, implementor, coordinator, custodian and guide only after my investigations and so naturally the investigations are illustrations of how one operates in those ways. I operated in a process similar to that described by the museum directors. As a manager of form, I worked in all facets of my role almost simultaneously but circumstances forced me to stress some and de-emphasize others. If one counts the weekends or evenings when I cleaned the boxes as stressing the custodian, then I went
through at least one period when each role was being stressed. This didn't occur because I wanted to try each one, but because interest in all facets of the place forced me to act in that way. When the electricians put the lights in, I had to coordinate several needs and when no one understood the reason for the boxes' presence, I had to act as a guide. While I was doing those things, I was also formulating designs, watching how things were working, occasionally fixing or cleaning things, and at times carrying out design ideas I had. Each one of these, in fact, did nurture and influence all the others.

The most crucial part of the role, or at least the one which I had least mastery over and therefore had to work hardest at, was timing. Decisions were difficult because as a designer I was not used to acting quickly under uncertain conditions. It became obvious if I acted too soon and with too much vehemence or too late or with too little power. The quality of the physical environment was perceived by when and with what force anything was done as much as by what it was. The originally violent rearrangements of boxes, the pressure toward function and the release into restricted play was not something I orchestrated ahead of time. Neither was it something I did, but something all those who used the space did.

After a while I got a feeling which politicians probably develop. This was a kind of sensitivity to the relative direction and intensity of expectations of my constituency as they changed.
over time. This was easier for me because of the smallness of my constituency and because of my direct contact with them.

Many said they didn't notice the changes much or they were glad to see a project followed up for once. These are rather matter of fact statements in response to my questions asking how they felt about the changes that were constantly occurring. There is no doubt in my mind, however, that the evolution of form over time influenced people's perceptions of this place as much or more than the usual static form sequentially viewed analysis we do. People continually referred to past forms of a given place and often vividly recalled the more violent experiences of change. They seldom referred to the rhythm or timing of elements along a path but often referred to the tempo and form of change. Although most whom I spoke to did not recall these references they'd made in conversations with me I feel confident that experiencing evolving forms is a significant part of our daily lives.

I didn't go through as rigorous a design process as I have in the past when designing was my only function. It affected the design of the boxes because I was not yet fully involved with the place, but I don't think its elimination resulted in any less worthy a paint job, graffiti mural or light distribution pattern. The usual design process in those cases was intermeshed with all my other work and was, in fact, fairly rigorously thought out. I also allowed a few things I wouldn't have as a designer
to keep my paint crew and muralists happy, but I don't think they significantly altered the impact of the design.

This leads to a problem, however, of what to do when a manager is more interested or has some reason to stress one or more facets of his role sacrificing others. I was probably mostly monitor and least custodian. Usually, in government or public works there is some balance of power and interest groups to see that all jobs are done fairly and up to a certain standard. Architects are not supposed to design and build work for a client. The A.I.A. thinks one might be tempted to cut costs with inferior work. Contractors bid, and, if accepted, must do the work for that price while the architect checks the standards. To compound the problem, it seems unlikely that all the powers given to this one position could be granted without a basic administrative-political realignment of some sort. I will suggest what I think are some workable realignments in the final sections of this thesis. To achieve this realignment, there will have to be a political demand created which is strong enough to change the existing system. Any attempt to do this will require a clear presentation of inducements for most of those concerned to make the switch.

Many studies have pointed out how the social and physical environment are inextricably intertwined. Although this thesis doesn't focus on that as an issue, it should be obvious that the inertia or patterns form managers have to deal with exist in the
social as well as the physical environment. In the snack area, ingrained habits easily maintained disadvantageous action. In larger contexts where the results are more palpable, the usual way of doing things still carries great weight. This is true for some merely because their minimal subsistence makes experimentation dangerous and possibly fatal. For many reasons, social patterns often have great inertia. Managers of form must work, as many have already, with those from these other areas of concern to make managing easier and more relevant.

V. SUGGESTED CHANGES IN M.I.T.

Several changes in what I called M.I.T. offices would make this administrative group better at managing form. The suggestions I'm making focus around the idea of making each specialized fragment more sensitive and responsive to other specialists and users. Along with this I think elements of local control can be introduced into the management system which will benefit all concerned.

Communications are usually not meaningful unless there is some desire to make them so. The division within the office of physical plant meet often and are in offices right next to each other in one area of a building but often they don't truely work as a team. At best they avoid hurting each other but seldom aggressively work to help another division. To coordinate action and increase a meaningful and constructive tie between divisions, I suggest continually cycling a part of middle and lower level
management from specialty to specialty. This creates a pool of generalists at the operative decision making level as well as at the top. These are the people who will make a meaningful linkage within the diverse and often disconnected offices.

To create a meaningful link between users and management the administration should institutionalize a monitoring system. Students along with lab technicians, clerks, faculty members, maintenance and janitorial staff all are users and have intimate contact with other users. These people could perform a monitoring function as part of their usual task. Monitoring should not be mandatory and would have to vary according to individuals. Payment or some other rewards or privileges should be given to any who accept the added responsibilities of monitoring. Students are employed as janitors. Surely they and some janitors could report on patterns of wear and use. Professors or lab technicians could report on the functioning of their specialized spaces. Anyone could be designated as an ombudsman of sorts who reported to some group who had the power to act. In short, the subjects should monitor themselves and their environment. I have been told that many don't want this responsibility and agree that it should be an optional and recognized job. Many disliked being observed and a few thought I was an efficiency expert and left when they saw me timing them. I feel monitoring can and should be continuous and not remote and therefore should be an integral part of daily work. Outside
objective studies can be done but don't seem to me to be an efficient or effective monitoring device. Local users are good monitors because of their intimate knowledge about a place but are dangerous as illustrated in Huxley's "Brave New World." Some office will have to be created to analyze all this data or perhaps the planning office could add it to its responsibilities. It must be realized that the creation of a monitoring system will create an expectation for action. If action does not occur, people will probably react against the institute and at the very least make the monitoring system less potent.

Finally, a mechanism which supported local action within some range of rules should be established. A mechanism for breaking rules should also be established for this and other standards established throughout the university. I think the emphasis here should be on giving each academic department a greater say in what the corridor or other public spaces in their area will be like and in how they'll be managed. The halls now are a continuous no-man's land and perhaps departments can gain space while giving local character to halls if they have more control over them. The Theoretical Physics and Architectural Departments have public corridors which are really more a part of the department than most halls. One needn't go that far everywhere but local control and interest should be increased. Along with the departments many individuals or small groups wish to do things in the public interest at M.I.T. and there should be a method of sponsoring them. Any department or other represen-
tative group should be given authority and funding as a local form managing agency if it requests this with some set bounds. Certain important areas (such as the public territory starting in front of Kreske Auditorium and extending in an expanding and contracting line across Mass. Ave. and down the main corridor) should be designated as the jurisdiction of localized institute managers of form. Students who want to set up and run a restaurant or specialty shop or just build a lounge or recreation space for those in M.I.T. should be helped and encouraged as long as the activity was within the rules for all M.I.T. activities. Local managers of form as agents of the institute will be able to encourage and support local participation of all sorts. Funds will be needed to sponsor the creation of these facilities and pay the salaries of those employed in its creation and operation. Some may return more than they drain. "Charrette" suppliers to architects was started in a closet in the basement of Harvard's Graduate School of Design by students.

There are many urgent problems in M.I.T. The micro-climate or heating, ventilation and air-conditioning is abominable in most of the main buildings. The segregation of private and public, indoors and outdoors and Cambridge and M.I.T. should be relieved at least in some places. Movement through the university should be made easier and more pleasant for bicyclers and pedestrians. Maintenance should be better and less things
like all grey walls or concrete benches which make users suffer for the sake of maintenance should be done. In other words more should be spent and thought about maintenance. Patchwork and change should be related to contingency plans for evolving M.I.T. form. The area I worked in was below a new glass link, but the basement was done in the same old way. At least a clerestory, if not a sunken courtyard, should have been included. A wider variety of interest groups should be allowed and encouraged to aide in writing programs and evaluating plans for new construction.

M.I.T.'s physical environment seems lacking in a spiritual sense. If it's to be privacy, lassez faire, formalism, megastructures, industry or any other concept or series of concepts which M.I.T. should evoke, then let's go all the way with it. This means the central administration should take a strong stand as to the spirit or quality of this place. Most users are dissatisfied with the general quality of the place as well as with specific things. Few have a sense of what can be done about this. The present organizational structure is centralized and even with the decentralization I've suggested, I think more enlightened direction needs to and can be given. Judging from the results the central authorities have shirked their responsibilities for the physical environment after the original building was built.
SECTION FIVE

APPLICATIONS FOR MANAGERS OF CITY FORM
University administrators are not the same as elected officials, and corridors are not city streets. There are many similarities which make people think of the university as a microcosmic representation of cities. The fragmentation of interest groups and the diversity of activities often make a campus feel like a small city although it is not.

My primary interest is in city design and I undertook this study with the hope that it was limited enough for me to do but broad enough to suggest applications at larger scales. The course of action at any scale should be in response to that specific place. Many of the ideas suggested in Section Four hypothetically apply in urban settings. These have suggested to me abstracted or potential avenues of action for city designers which are listed below.

I. FILLING VACUUMS

My studies indicated that initiative can lead to an extension of influence. In many areas no one has strong feelings about or control over form. Good ideas for an area or activity can lead to gaining control. Ideas which led to extended control often came through a preparedness to capitalize on seemingly unrelated happenings. The architects gained legitimacy and therefore some power in responding to Martin Luther King's death.
Having good ideas is not enough. To gain control, some way of getting power, is necessary. Demonstrating effectiveness and communicating ideas to those in power are techniques illustrated by the architects and in part by myself. To become competent managers of city form, designers will have to extend their range of interests and their power. Filling vacuums is one way of doing this.

There are vast areas of marginally used space and great quantities of usable but discarded objects in the city. Goodwill Industries is based on using these as are the games of children played in vacant lots, parking areas, under highways and in fact everywhere. Vest pocket parks are really just the recognition of something kids have done for a long time. Managers of form will discover things in time as well as space. For example, parking lots could be vest pocket parks part of the time.

II. PARTICIPATION IN MANAGING CITY FORM

User participation in design and implementation created a richer environment through juggling boxes and doing the on-going graffiti mural. This participation was clearly in a limited sphere. Different people participated in different ways. Rose for instance was a monitor, teacher, host and custodian but rarely served any of the other functions. Often people participated merely by giving a helping hand for a minute or two. More people in fact helped move chairs in the seminar room, or
candy machines, or carried or loaded up things in the concession area than any other kind of more formal participation. Often this trivial action led to more meaningful involvement. I define participation as an overt action which can become part of managing form. Formal commitments, I feel, rule out a large percentage of the potential. No one signed up to do the graffiti mural; whoever happened by decided on the spot and knew what was meant by participating.

There seemed to be several criteria for when people would participate. First: how real an issue in terms of their needs and desires was the action called for. People will not do things they think are to their disadvantage and are reticent about doing things they think are irrelevant. There is another facet to this. Some people would help move a candy machine because it is obviously legitimate action. These same people might not paint a graffiti mural because it is silly, even if no one is watching. Others would rather paint because it's a kick or because they have something they'd like to say.

Second: people judge the degree of time, effort and commitment required in terms of some internal standards or reward expectations. It is difficult to generate ideas or work that are disproportional in required effort to any given group or individual's ideas of what work is and what it's worth. Third: those who do not want to participate or resent being bothered should not be pressured into hostility and resentment.
By examining what facets of managing form are closest to possible user control or by looking at each facet for ways users can participate, one can open up many small but vital connections to the whole process. At the end of least commitment there should be a great multitude of different facets one can get involved in. This would open the way for many different sorts of people. Many small scale and immediate projects which passersby or locals could casually help in if they felt like it could be created. Rewards in the form of money, prestige, recognition, or privileges of some sort could be given for participation. These projects should be observed and evaluated by participants and managers of city form as part of a feedback mechanism which directs future action. Presentation and generation of ideas for action should be done on the site where possible. Happenings, environments or events related to proposals where all involved with form, and users, can manipulate and react to potential qualities of public places. Brainstorming with locals through the use of simple and real issues that all can respond to before proposals are developed can be done in this way.

Some users do and will make long range commitments or can work with the usual planning and design abstractions. Avenues for these people should be opened up, but my suggestions relate to the mass of people who, from my experience, don't have the desire or ability to act in this way. People were most interested
in participating in the design process and not everyone was interested in that. In many areas of form management such as custodial work, most people agree on standards and don't want to be bothered. Part of a city form manager's job is discerning when people want or need to participate and what technique will support and encourage that participation.

III. TUNNING AND MANAGING CITY FORM

A. NEW PROCEDURES

Under our present administrative system, managers of form, as I conceive of them, do not exist because of a segmented and static "project" view of urban design. There are techniques of form management that can be developed without too radical a change in our present political system.

Individuals or groups can be given complete control for short times, or in discontinuous time or there can be an extension of concern into overlapping areas of specialization.

Small cadres or task forces could be sent out to orchestrate or manage the physical environment in a given area for a given length of time or at regularly scheduled intervals. Traffic cops, designers, painters or construction workers, street furniture or public works experts, street vendors, maintenance men, teachers, musicians and users, etc. might get together with some design leader or "conductor" at given times and places to see what they could do.
Individuals or small groups might be cycled through the system expanding their knowledge and that of each group they became part of. I illustrated one way of doing this in my suggestions for changes in M.I.T.

Local institutions might take over some responsibilities for managing form in their area. New institutions like Mayor White's local city halls might be created joining existing institutions to handle this job. A strategic set of local managers of city form should be established in this or some other way.

Overlapping phases might be developed for projects. For example, designers and contractors could become jointly responsible for making adjustments as users move in. Elements of any project should be designed to have a flexibility which allows for adaptation during use. Design and construction of some elements can be left out to be established by users, maintenance crews or by others while patterns of use and adaptation are evolving. Mini-buses in which passengers and drivers help establish routes for permanent transit lines (in the way paths through fields are established by users and then paved) are an endeavor of this sort being tried now in Boston.

B. SERVICES

There are crucial parts of form managing which are virtually non-existant in cities today. Coordination and monitoring are
done poorly and acting as a host is a rare exception rather than an everyday activity.

The constant need for adjustment to new environments, the inhibitions which stifle action, and the fact that users just like attention all indicate the importance of the host and teacher. Perhaps the unique quality of the boxes created this importance. Any unexpected change or unfamiliar environment, however, would cause this same need.

All the facets of managing form in cities need improvement, but guiding seems crucial. Guiding the use of our public environment is not a problem of one demographic group. The emphasis should be shifted from policing to helping everyone, suburbanites as well as slum dwellers, during their sojourns in cities.

Perhaps at the lowest level some roles must be separated. Being a policeman, host and teacher is a difficult combination for one individual. The performance of the functional parts of managing form is clearly more crucial than the next level of sophistication which is how they are combined. The total action should be integrated, but this doesn't necessarily mean that one person does everything.
IV. SOME CRITERIA FOR CITY FORM

This criteria is for places where people are taking a break from their daily tasks. All of the environment is used in this way some of the time. Some areas however are functionally designated for this purpose.

In the concession area people relaxed by watching others, tried to gain new contacts or learn things by talking to people, or did something which released pent up energy of some sort, along with eating. An open area with an irregular perimeter which provided commanding, partly removed and safe feeling places seemed best for all these activities.

An overly functional view of the environment can stifle forms of play and self expression which people enjoyed.

More people will express themselves if they do not have to put themselves on display to do it and if they feel their action is legitimate.

Flexibility and ambiguity encouraged play.

Ambiguity made adaptation and functional use more difficult for users. Adaptation and use is easier if an object or place looks similar to other things which are used in a similar way, or if use is somehow implied by form. Any environment should have at least some of this familiarity especially if the users are constantly changing.
SECTION SIX

FURTHER RESEARCH AND EDUCATION
I. EXPERIENCING EVOLUTION

Books have been written about the evolution of form as have books about experiencing given sequences of static forms. Seldom has anyone studied or written about experiencing the evolution of form. Traveling as a commuter for a few years along a given stretch must change not only as one gets to know it or gets bored with it, but as it evolves into different forms. I grew up and saw Central Avenue in Yonkers, N.Y. change from gravel to asphalt to the New York Thruway. This line changed from an insignificant part of our environment to a major artery to an impenetrable barrier. It is more of a barrier because it bisected our playing territory and so we experienced it differently than new comers. Would I think of Boston's Government Center differently if the City Hall was built before the Federal Building? This I feel is an interesting area for research. One would learn more about the nature of nodes, landmarks, etc. if studied in this way.

II. MANAGEMENT TECHNIQUE

Playing all facets of the form management role limited my ability to experiment with different combinations and degrees of specialization within the total job. I suggested before that perhaps policing needs to be separated from teaching. The wide discrepancy which seems to exist between those following these different careers as they exist today prompted that statement. Studies and experiments aimed at discerning political
and administrative systems are needed to throw more light on how form management systems can best operate. Better management systems for our cities are sorely needed.

More studies of a type that would help designers in making management decisions are necessary. Studies of appropriate scales of action or interest are needed. Economic considerations are one area where limits of managerial action can be found, but there are others that might begin to indicate ranges of stability necessary for the elements of a city. Safety and reliability is necessary on roads and a certain degree of orientation is important to maintain, but surely there are scales and/or intensities where changes bring diminishing returns. If I continued to work in M.I.T. expending all my energy on that one snack area, I would probably be gaining less and less in terms of improvement. This is compounded when one thinks of the need in the rest of M.I.T. I've seen models that tell managers how to determine when to stop all sorts of action including information gathering. Designers should have more tools like this.

One related thing that was difficult for me probably because of my education was making decisions and acting upon them at high speed. As a designer and planner, I've been taught to deliberate and attempt to search for implications of every act. Often I did not capitalize on opportunities because I stopped to deliberate about them and they disappeared. I suppose high
pressure sketch problems or case studies would prepare students for this sort of experience.

Design problems in school should force students to think about all facets of the physical environment but in fact in planning studies the problems often never get detailed enough to examine anything but the most fundamental issues related to a problem. I don't think students should be forced to study everything in detail but often discussions of design are one sided and exclude maintenance, user adaptation, monitoring, and/or administrative control systems. In general, however, just discussing design as part of a management process is an important change which has already been taken. This change redefines the field not the concepts within it.
NOTES

1. I use form as an abbreviated way of saying physical environment.


3. Museum directors and consierge act in this way.

4. Master plans and plans for project areas are essential drawn with staging plans and completion dates. Designers usually do not work in those areas again until they are redesignated as areas for study. "Settle" means to locate permanently. Man's first settlements were for the dead. Perhaps these paleolithic settlements have influenced our view of cities.

5. A good analysis by Professors of Management of the differences between planning and management, which much of this section II is based on, is "The Planning Dilemma: there is a way out," by Hekimaian & Mintzberg.

6. Sayles "Managerial Behavior."

7. Alexander "Notes on the Synthesis of Form" and "Team 10 Primer."

8. Hirschman in "Strategies of Economic Development" illustrates the potential advantages of unbalanced over balanced developments.

9. Banfield in "City Politics" points out that politicians don't like to make anything but the vaguest objectives for plans explicit. Often this makes them irrelevant.

10. There is a large body of literature theorizing about the innovative abilities of marginal men, e.g., Morrison "Men, Machines & Modern Times."

11. Administrators like Logue in Boston or Bacon in Philadelphia certainly have a great deal of responsibility as head of redevelopment authorities but have not had control over departments of public works, traffic or other related agencies like recreation. They have instead attempted to design and implement projects which are in fact managed by other agencies.
12. Any form specialist should be able to diversify and become a form manager, not just designers.

13. Robert Sommer in "Classroom Ecology" discusses the sequencing and location of seating as it related to voluntary participation by students. Those in front and near the teacher participated more often and were often forced into that location by coming late.

14. Eric Hoffer in "The Ordeal of Change" makes similar observations.

15. This mode of action seems to closely parallel that of the business community in a city or metropolitan region.

16. In Cincinnati a local civic board hired architects to give suggestions and free services to merchants in the local shopping street. No one asked and several didn't accept advice.

17. This mode of action seems to closely parallel that of the planning and design agencies in many cities.

18. Walter Isard, "Municipal Costs & Revenues Resulting from Community Growth." More studies of this sort are needed.

BIBLIOGRAPHY


"Team 10 Primer," A. Smithson, Editor.
Stairwell Storage
An Interesting Stair Not Manipulated

Building 10 Highly Manipulated
Stairwell Building 2 Highly Manipulated
The Glass Link Above
The Concession Area
Not Highly Manipulated

Maintenance Problem
in Stairwell Bldg. 2

Rarely Does One See
Behind the Long
Grey Walls
Rose as hostess and custodian did a great deal to improve the quality of the environment.

A remote, safe and commanding corner.

A "mischievous" graffiti artist.
A signal of the concession area from around the corner.

Intense lighting kept people from sitting in their favorite places.

Janitors push everything against the wall.

A less functional but more sculptural arrangement by users.
M.I.T. corridor.

Graffiti mural.

The continuation of the mural (in ink) by graffiti artists.

Looking from a public corridor into the architectural dept.
Sculpture constructed on campus and sponsored by the Committee on the Visual Arts.
DATE: 13 JUNE TIME: 10:00 AM.  MY ORIGINAL ARRANGEMENT

DATE: 13 JUNE TIME: 12:00 PM.  REARRANGED IN MY ABSENCE
DATE: 13 June  Time: 3:30 PM.  WOMEN REQUESTS CHANGES.

DATE: 13 June Time: 9:00 PM.  IN MY ABSENCE - 3 HIGH SCULPTURE.
This is an experiment testing different ways of using & dividing up lounge & snack area space in MIT. Feel free to rearrange or use these boxes any way you like within this space. This is a basic structure and possibly many things can be added. Cushions, lights, a fan, carpet, chalk bd. etc. are all possible. Make requests or comments and an attempt will be made to comply.

**COMMENT**

Who needs it?
Who does it?
I love the idea
Rugs
paint or shelfac outside of boxes

What the hell do these boxes represent?
Part of Park Place Grouping??

Physical plants should provide

Pleasant light, color in this place.

Until now in the Institute

Eat and Drink = DRAB BASEMENTS

I'm a girl & I couldn't move one of these boxes if I tried - or at least I'd look pretty stupid trying!

The Microlab needs more space, get rid of these machines!!!
Make this place into a sidewalk type cafe (with French waiters).

**PAINT D’WALLS!**

**PAINT D’DAM’ MACHINES**

COLOR, COLOR. I MUST HAVE COLOR.

COLOR. I NEED MORE—MUCH MORE

MORE COLOR. I NEED GREENS + BLUES, ORANGES &...-

Only at M.I.T. have I experienced the strong desire on some parts to spend money on general improvements, without making any.

My Mother, thank you

My Father, thank you

My brother, thanks to

My sister, thanks to.

On hell.

ANYHOW, I THANK YOU.
These boxes are for sitting on while on your break.

Funny Anatomy I'm sure.

Shut your stupid mouth and sell extra coffee!!

Please have different "Artists" work on this basement (than those of Bldg.)

Comment

Pretty good drums!

How childish can we get?

In good soke childlike!

Who would want to sit here?

You know where he is!

Don't like it