

PEOPLE ON ESCALATORS:  
STUDYING BEHAVIOR  
PHOTOGRAPHICALLY

by

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## ABSTRACT

### PEOPLE ON ESCALATORS: STUDYING BEHAVIOR PHOTOGRAPHICALLY

by Virginia Ayers

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How people use escalators is studied using super 8mm films and 35mm slides of behavior at airports, an urban office building complex, a shopping center, and a department store. Findings useful in conducting similar modest studies in architectural research are discussed as well as some findings related to behavior on and near escalators. Behavior on a moving sidewalk, stairs, and pedestrian corridors is discussed in comparison.

Photography of behavior is here used as a way of exploring a particular kind of site and generating hypotheses about behavior. Hypotheses about typical behavior of escalator users, about behavior characteristic of special populations, and hypotheses relating to various environmental influences are presented. Insights into broader issues of implications of mechanization and indications of man-environment relationships are also discussed.

The process of studying behavior photographically is also exposed both in an explanation of how the study was conducted and in discussion of insights on methodology growing out of this study. Research photography as opposed to artistic, technical, and journalistic photography is defined. The case is made that the researcher is also the photographer, and that the designer should be a member of the research team. Ethics are discussed and it is recommended that if permission to photograph is not obtained from subjects in advance, subjects should be allowed an easy "out". Many similar studies will have the opportunity to make use of unexpected input from "participant-observation" and "interviews" not planned as part of the research. Some photography is seen to be similar to anthropology because of the qualities of the student of public life as a "witness"; the point is made that the more sensitivity and understanding we use in witnessing our own private lives, the less we may have to submit to destructive research techniques.

The study is illustrated and includes examples of records taken at the time of photographing. It is supplemented by a visual presentation of some of the findings, hypotheses generated, and evidence used, called "Looking at People on Escalators".

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Commentary on behavioral research in architecture

An escalator is one of the small settings for daily life, public life. There appears to be a fairly universal curiosity about the nature of daily life. Many people who have politely inquired about the subject of my thesis have responded with a surprised and genuinely interested comment when I say that I'm looking at how people use escalators. Others have come up to me when photographing to ask what I'm doing. More than a few times my photography has been postponed by interaction with interested observers who are "in the people business" and who want to share their insights with me. Certainly in many situations it's more fun to be a participant-observer than a participant, especially when participating is not very interesting, like riding on the Seventh Avenue IRT Express from 72nd Street in New York City to Times Square. It is too noisy to talk to companions, too brief a ride to read, and we're too likely to miss getting off if we get too deeply lost in thought, so we people-watch.

It is reassuring to see Roger Barker's candid admission early in his book Stream of Behavior, (which is an anchor many researchers of daily life now cling to) that "psychology is surely one of the few sciences that has little more knowledge than laymen about the occurrence in nature of many of its phenomena; of talk, of fear, of problem-solving efforts (and their successes and failures), of laughter, of frustration, of being disciplined, of anger, of achievement, of

co-operation, of play, of being teased...."<sup>1</sup> No matter what academic and professional names students of public life go by - environmental psychologists, architectural sociologists, urban anthropologists, - at present, we're all amateurs and suffer the problems of amateurs. Many of us independently discover the basics, we get rusty in our skills because we are not called on to use them constantly, and we overdevelop some aspects while we ignore others.

The "people business" is now popular, use of escalators is escalating, and everyone is doing films these days, but my intentions behind this study go beyond the popular subject matter. This study is an attempt to help us grow away from our amateur status, to help us be more systematic, reliable, and, not least of all, more responsible in our work of discovering what people do and especially how they use the buildings we design.

This study is not concerned exclusively with how people use escalators; it also examines how one goes about finding out what people do on escalators. Designers of buildings are always needing more information than they have. One often hears the layman's lament, "Why didn't the architect think of that?". And often the lament is justified. When it is justified, it hardly matters to the people using the building if the problem was built in because the

<sup>1</sup>Roger G. Barker, The Stream of Behavior (New York, 1963) p.7.

building was so complex that the architect had too many other, and more serious problems to study in the time allotted for design. Nor does it matter to the layman if the building is innovative and neither the architect nor anyone else had previous experience of such problems, nor if the architect was simply forgetful, inexperienced, or recognized the problem but found himself forced to choose the lesser of two evils, nor does any other reason make much difference to the people who must live with the problem, as long as it is there. Research on design methods must continue to explore the ways in which problems come to be and come to be eliminated; research must also take place in discovering more of the problems which can and do occur. Buildings are being built every day; environments are being planned and changed. My major concern here is to understand more about the ways we can get and use information which will help make the environments built five years from now better than those built today in terms of how people actually use buildings and pieces of buildings.

There is a growing body of literature gathered from many disciplines in social science now used as conceptual and methodological resources to designers and environmental researchers. The same works have appeared in bibliographies and reading lists for years and are now being given defined places<sup>2</sup> in the structure of the new field they

<sup>2</sup>as, for example in  
Constance Perin, With Man in Mind (Cambridge, Mass., 1970).

helped generate.

This literature has shown us new ways of looking at life around us, but so far it has done very little in giving us the kind of specific knowledge of what goes on or is likely to go on in specific sites, knowledge on a detailed level that can be used by managers, planners, and designers of environments. Many of these works, like Personal Space<sup>3</sup>, are intended to communicate a new point of view rather than specific "facts" which can be applied to design problems. The specific examples given as illustrations are often interesting and useful, but they are isolated pieces of life, gathered from a variety of situations, and intended as possible starting points for exploration. In these early books, the new points of view are too broadly applicable, fortunately, for the first works to cover indepth the situations in which the new points of view can show us things. These authors have done us a great service by giving us such useful tools; they cannot be expected to also describe all the situations where the tools can be used and all the knowledge which will come from applications of them.

Another major difficulty in applying these works directly to architecture is that at first they dealt with behavior in physical environments only incidently. Now that architects have tried to engage social scientists in research on environments and specific design we

<sup>3</sup>Robert Sommer, Personal Space (Englewood Cliffs, N.J., 1969).



can see more clearly the profound differences between architecture and social science in their approaches to similar areas of interest. It is a constant task of the designer to keep directing the social scientist to the questions that will have implications for design and to date social science hasn't addressed itself to the range of issues designers consider.

Part of the problem, as would be expected, is the difference between people in the academic world who don't like to make statements about the way things are unless they're fairly sure, and people in the professional world who are constantly pressed to make decisions whether or not they have the information they need. But that is not the major problem, as designers are usually willing to hypothesize design implications if the information is at all related to the physical environment (witness the wide discussion of the above literature in almost any situation remotely related to situations discussed in the books). The social scientists first involved in the man environment field were trained when there was little or no thought given to the physical environment in their fields. As persons, they chose fields of interest which were not concerned with the physical environment. And although social science disciplines may incorporate new concerns, human relationships with the physical environment can still be only a small part of their interests.

The fact remains that designers do need behavioral information if

environments are to better fit occupants. And where the central concern is how shall I design the physical environment to best suit the psychological, social and cultural needs of the users as well as make the building function in all the other ways it is supposed to, the designer needs a great variety of information, usually beyond the interests of one social scientist, or even a team consisting of one representative from each of a collection of disciplines.<sup>4</sup>

Observations of people in buildings brings us a lot closer to the subject of our study than does remembering people-watching occasions or recollecting accidents which called our attention to latent problems. In depending on recollections, too many pieces of the environment go systematically unnoticed, too many situations are seen as being pretty much the same, and too many parts of the population are left unconsidered.

Aside from what we know from miscellaneous people-watching for entertainment, there are many interesting aspects of daily life which few of us give much thought to. For example, when I go to a bank to make a transaction in person, I may people-watch if there is a long line and I have to wait. As I near the window, I can tune in to interactions between tellers and clientele, but more likely I check my

<sup>4</sup>See William Alonso, "Beyond the Inter-Disciplinary Approach to Planning," JAIP, for a discussion of some of the hazards of using interdisciplinary teams for planning & design projects. XXXVII, No. 3 (May 1971).

papers and start planning other errands. By the time I am at the counter, I am usually 100% participant and 0% observer, and it is difficult to recall later just what I did to conceal from people nearby that I was withdrawing a large amount of cash. When I design a bank lobby, sitting at my drafting board, I recall what I can about banking from my own experiences in addition to what I have learned from the client. But there is more to know than we can get from those sources. There are answers to more of the questions designers now ask themselves at drafting boards, and there are surely more questions that can be answered than designers now ask. Systematic observation before and during design should start giving us more of what there is to know.

We can also learn some interesting things by asking the people who use particular buildings how they use them. But if they are also only occasional people-watchers, then we're not much better off than relying on our own sporadic observations. Certainly by asking other users, we're expanding the sources of unsystematic observation, and so more likely to consider more of the population in our design, but we're not necessarily observing the behavior that none of us may notice as participants.

Later we may have to use other methods, as we find that observation can mislead us or <sup>not</sup> tell us about certain aspects of behavior. Before turning to other methods, we should have more experience with observation, to get an idea of what it can show us, and then look for

what it can't show us.

What to observe - how do we define our observations so that they can be more systematic? I can think of four different kinds of studies, and there are probably others as well.

- 1) Study of a particular building type is one kind of research we already see (for example in hospitals, college housing).
- 2) User-centered research is another, and we are beginning to see studies of environments experienced by a particular population, like elderly people. We might examine the total environment of a patient during illness, from reception, to treatment areas, to out-patient clinic, to home.
- 3) Location of specific kinds of activities can also be studied, like settings for interaction between college students and administration anywhere on campus.
- 4) Small pieces of buildings repeated in many different kinds of places, like lobbies or toilets might also be examined.

My study falls into this last category, a piece of the environment unlikely to be considered in advance of design. It is unlikely than an architect would request research on escalators or any other part of a building which is a relatively small piece of building, relatively insignificant in the experience of the users, and a familiar element in many buildings and environments designed today. Designers request information about the parts of a design which appear to be critical

to the success or failure of a project. For example in a government building which serves the public, an important aspect of the design might be the public spaces and areas for interaction between the public and the public servants. But the designer could also make use of information which is more metaphysical, like what is the meaning of a high rise building versus an "atrium" building. Or on the other end of the scale, where should signs and other information clues be placed so that they answer questions at the times they're likely to arise in people's heads. But the decision to include escalators in the design, or design decisions about how escalators are incorporated can sometimes affect the success of the project in dealing with critical issues or metaphysical concerns or functional aspects like modes of pedestrian searching.

If an architect seeks information which will help in deciding on the character of a building or its base planes (street level and usually one level above and below), like whether they shall be floors connected primarily by elevators or grand stairways or ramps or escalators or moving ramps or a series of gradually ascending and descending platforms connected by small groups of steps, he is likely to ask for structural engineering information, pedestrian traffic flow information, elevator and escalator capacity figures. But he is unlikely to ask for information on the social life of these places and the greatly different uses of such places for different populations. Is

the situation different for a group of companions as compared to a population of individuals unknown to each other; how do different kinds of people, like elderly people, differ from the general population in their behavior on escalators; how is the situation similar to and different from other situations in its effect on behavior; what does it tell us about people and their responses to various situations.

Photography appears to be a powerful and available aid to observation, especially for behavior which occurs only briefly. Years ago, I had used photography as part of an evaluation of a particular design in use. Also I had conducted a brief observation study of behavior on escalators and moving sidewalks as a term paper for a course taught by Erving Goffman. For that paper, still photos of the events I observed were taken by someone else in order to support and illustrate the analysis. I found that the photographs themselves were of great benefit when I trying to organize ideas into a coherent theoretical statement.

The idea to use movie photography to study behavior in a specific kind of place came out of my experience with TEAG.<sup>5</sup> The firm acquired a Braun Nizo S 56 super-8 mm movie camera and to understand better how the camera worked and how much lighting was required for interior shots, a colleague took various time-lapse films of the staff at work. The

<sup>5</sup>TEAG - The Environmental Analysis Group (Vancouver, Canada) a firm which undertakes consultation and architectural research from concept development to recommending methods for implementation to evaluation.

films seemed rich with information we could use to better the working conditions as well as to understand more about the nature of office life.

It seemed to me that the time-lapse camera was going to be a very useful tool, not only because of the information it can record, but also in it's ability to teach us how to see more. It wasn't until someone made a casual comment about using films to show specific aspects of behavior to designers of a particular project that a third kind of potential of the small super-8 mm camera became clear to me. This comment reflected the concern that although the facilities planners on the client staff and the architectural consultants might come to understand the importance of the issue of the design of the setting for a particular kind of interaction, the value of that insight might be lost unless it got into the heads of the designers. The implication was that written texts in reports and discussions at meetings probably might not convey the importance of this particular issue, its richness, nor the directions in which radical innovations of physical form might be tried without harm to other requirements of the situation. And this comment made me realize that motion photography might be simultaneously a powerful tool for communication as well as analysis and observation training.

This study does not grow out of a specific design project, but it attempts to look for ways of answering designer's specific

questions while it starts exploring larger issues as well. It uses methods which could be used by small research teams and architectural firms interested in conducting modest behavioral studies of their offices. People on escalators are studied using time-lapse movies as an aid to observation in recording, analyzing, and communicating some of the visually observable aspects of behavior. And perhaps the most interesting aspect of photography for research is that it allows the research data to be presented to designers and other decision makers in its original form. Until we know more about behavioral research, we run the risk of losing too much information that can be understood intuitively if we present only the "results" of our research.

The study comes as three parts, two written parts and a visual presentation, "People on escalators" presents the conceptual direction of the study and various findings. "Studying behavior photographically" discusses the evolution of the study, specific techniques developed and experiences of possible interest to other research. "Looking at people on escalators" is a visual presentation of some of the findings and a kind of test of film as a research and communication device. This study is not a fulfillment of all the expectations set forth in previous pages, but it is a start, and I hope a clarification of those expectations.



People on escalators

Perhaps any study undertaken ends up being different from its original definition, and not only is that true of this study, but also it is possibly one of its major values. It is difficult to summarize the major findings because the study seems to be more of an on-going process than a study which has drawn to a close.

The most attractive findings are the clear ones, easily understood; significant, explaining a lot; and previously not suspected, certainly not common sense. If I were to present only the findings which met these criteria, I wouldn't have much to say. It is because I feel there is more of value in the study that I will present more than just the most attractive findings.

It has seemed relatively easy to build a collection of information about escalators which could be immediately useful to designers. Much of this is on the level of common understanding, or at least any escalator expert is likely to know a lot of this. Experts like security personnel stationed near escalators, escalator maintenance personnel, escalator manufacturer representatives, and building department inspectors have a common sense level of understanding which designers can use. Many of these findings should be communicable on film, and could usefully summarized that way for designers.

One aspect of common sense knowledge about escalators is the variety of behavior which can be seen. A person can carry suitcases

on an escalator, push a stroller; a redcap pushes a dolly loaded with suitcases onto an escalator. These are acceptable uses in many places. There are also unintended uses, like people leaning against the handrail (or even sitting-saddle on the rail of a moving sidewalk) instead of standing free of it; according to an escalator maintenance man this is "not supposed" to be done, but it seen very often. A moving sidewalk in an airport is sometimes used just to transport luggage, while the owners of the luggage walk in the corridor next to it. And there is flagrant misbehavior such as stopping a handrail by dragging on it, "belly-flopping" onto the handrail of an up escalator to see how it can carry various competitors, running up a down escalator, sliding down the stainless steel chute between two adjacent parallel escalators, standing on the handrails of a moving sidewalk, or even, as I've heard, jumping from the down escalator to the up escalator of two adjacent crossed escalators.

Armed with a collection of bits about the extreme uses and a general understanding of how different population respond to escalators, a designer can avoid a lot of misfit situations, and make provisions which will increase the general safety and convenience of the pedestrian circulation. He can also concentrate his design efforts on the aspects most likely to prevent him from achieveing his original purpose for the escalator, which is often providing continuous transportation at a certain capacity or offering people the experience and the view.

Some examples of useful bits of information for design are:

- 1) Every up escalator which comes close to a parapet of the floor above creates a narrowing corner in the direction of movement, which is often closed off after construction by using a triangular plate.
- 2) Any surface wide enough to sit on and running from one level to another makes a very attractive slide. Stops, usually metal angles or large buttons, are often installed at intervals along the length to prevent sliding.
- 3) Sometimes low fences are permanently installed to separate traffic from adjacent escalators in times of very high density, like during Christmas shopping periods.
- 4) Some small children, elderly, and people with many bundles have great difficulty with escalators and would probably prefer to take stairs or elevators if within sight.
- 5) There are times in the life of a building when an escalator is not operating, or an area adjacent to it is blocked off, or major pedestrian flows change direction. Pedestrian circulation should be examined during design with regard to possible situations, not just normal expected situations.
- 6) Capacity is affected by how quickly people step on, how close they stand on the escalator, and how much they walk on an escalator.

- 7) Access areas for stairs, elevators, and escalators are used as waiting and meeting places.
- 8) Stairs and escalators, because they often are the only opening between levels, are used as vistas to see to other levels.
- 9) People see an escalator from a distance and go toward it, apparently not noticing direction of operation or that it may not be running until quite close, sometimes not noticing until they touch the handrail.
- 10) People tend to go to the right escalator in a bank of adjacent escalators.
- 11) On a multi-level escalator building, people tend to lose count of floors.

I haven't directly pursued the design implications of this study. The above list can be made longer, it can be made more specific, and it can be made more reliable, I believe. But in looking for greater depth and breadth of information about escalators, I have searched for helpful conceptual tools. There is always the hope, and sometimes the realization, that with the right conceptual framework, one can define hypotheses carefully so that they are significant and testable, and one can guide one's future explorations into gaps in the formerly invisible overall structure.

One of the first concepts examined and set aside was one of my own about "transition sites" developed in an earlier study of esca-

tors and moving sidewalks. I had observed that groups of acquaintances, or families, sometimes drop all visible signs of being together while on escalators and moving sidewalks. They don't talk to each other, don't lean close; in fact it is sometimes difficult to tell that they are "with" each other until they get off, when there is sometimes an elaborate re-establishing of the relationship. I suggested that perhaps moving sidewalks and escalators were extended examples of a kind of place, a transition site, which is primarily a place that separates other places where activities and interactions are supposed to happen. Although people intent on maintaining a conversation or physical contact can succeed in even the most trying circumstances, many people will break off interaction, or let interaction lapse in the vicinity of doors, turnstiles, street intersections, escalators, moving sidewalks, etc. There may be some merit in the concept of transition sites, but the phenomenon I had observed did not happen as often as I expected when I re-examined it this time. And the phenomenon which I found so interesting seems to be seen more on a very long moving sidewalk than on an escalator, and more often in the direction for departures next to the wall of windows than in the direction for arrivals. The original observation seems not to be incorrect, but the phenomenon is not necessarily generalizable to other situations for the reasons I first suspected.

That first study grew out of an interest in the differences

mechanization can make in our daily lives. I had set aside that aspect of escalators and moving sidewalks as I completed that first paper, and was interested to see the concept finding its way back into this study (section 1.4).

Part of my underlying concern was to see if a study like this could offer any insights which might change images of pedestrian behavior away from the "flow" models we seem to be adopting without question. Formulas for capacity based on density of people, sidewalk (or channel) width, and walking speed are possibly inaccurate and probably missing the essential characteristics of the situation, even for dense traffic in narrow channels. But I began to consider a conceptual framework almost as mechanistic when I considered the escalator experience as a sequence with possibly distinct parts, and expecting to see behavior noticeably change from part to part. I was prepared to create a spatial sequential notation system which could be correlated to a behavioral sequential system (based on labanotation and kinesic notation systems). Fortunately, no starting point appeared because too many people appeared not to alter body movements or interaction with companions at even the most critical points, like stepping on the escalator.

Creating an elaborate analytical device like this so early would undoubtedly have been a monumental task because I wouldn't have known what I was creating the system to look for. It would have been a

strange device based on theoretical environmental units and theoretical behavioral units. Undoubtedly it would have prevented me from seeing and doing other things with the filmed data, things I now consider more valuable. It failed as a conceptual framework, but it might be worth considering for a very specific task which calls for just such detailed analysis to sort out phenomena.

It then seemed that the kinds of behavioral information to be observed could create a theoretical framework which would attempt to connect meanings to behavior observed. Location and motion of people could be described by looking at velocity and direction in much the same way as above, but as only one aspect of the information. Evidence of interpersonal interaction could be examined by looking at relative velocity, relative position to others, body contact, eye-contact, verbal communication, facial gesture, head gesture, body and head orientation, and general direction of gaze. This could be supplemented with evidence of perception, like looking at signs or other specific pieces of the environment, or pointing at something specific. Also evidence of decision, like an abrupt change in velocity or direction, or meaningful use of hands or head could be noted.

This approach was an attempt to make use of a variety of points of view developed by social scientists which I felt would be useful, especially if integrated. Taken separately, the study of interpersonal distances, face-to-face interaction, and non-verbal

communication seem rather exaggerated forms of analysis, leaving whole parts of a particular situation untouched. But my integration of these concepts would not be possible without knowing much about the behavior than can be gotten by visual observation alone. These concepts would remain useful occasionally, but could not be used consistently in this study where the emphasis has been on photographic data.

Although it appeared impossible to construct a theoretical framework which could encompass the variety of insights coming to light, the findings did seem to fall into groups, and that is how they are presented here. The insights, taken together, still form a rather miscellaneous collection. Those in the first three categories are loosely stated hypotheses, stated with more or less conviction and with more or less evidence behind them. The last two categories touch on some of the larger issues raised, and I think indicate that these broader matters are always with us in daily life.

In fact, if I were to summarize the findings as

- 1) behavior patterns which are seen to exist and may or may not be useful in making predictions about capacity, safety, etc. (discussed in 1.1, 1.2),
- 2) environmental influences which appear to affect the patterns of behavior which are composed of smaller patterns like the ones above (discussed in 1.3),



- 3) more general and metaphysical relationships between people and physical environments (discussed in 1.4, 1.5), I would have to say that I found the last group of findings by far the most interesting.

### Typical behavior of escalator users

These hypotheses are some of the things that many people are seen to do on most escalators, no matter where they are.

1) Getting on an escalator is more difficult than getting off.

I have seen people momentarily lose balance when getting on, but never getting off, although it can probably happen there as well. It seems also to be perceived as being more difficult because some people who step down the escalator and walk off did not walk onto the escalator, but paused and carefully watched the step.

It seems that more people hold onto a rail when getting on than when getting off.<sup>1</sup> People also appear to look longer when getting on than when getting off. In this respect, an escalator may be similar to a stair, where many people who looked at the first step glance up before taking the last few steps.

A moving sidewalk seems to be slightly different, although the relative difficulty of moving walks as compared to escalators is not entirely clear. Getting off is probably not perceived to be as great a change of speed as it actually is, especially for those who have walked on the moving walk. Perhaps people expect difficulty getting on and when it is easy, they are less prepared for getting off.

2) Each person on an escalator either glances before the step or touches the rail when getting on or off an escalator. It is

<sup>1</sup>See Appendix A, Photograph 1.

difficult to see where people are actually looking on my films but each one who was not touching the rail when getting on or off either nodded his head briefly or had it tilted down at an angle where it would be easy to see the step.

It has been suggested to me by two different people that in some pedestrian situations, like stepping off a curb, a moderate pedestrian density may require less of each individual in paying attention to detailed changes in his environment. If one sees people ahead stepping up or down, one knows when to expect the step and each one doesn't have to look down. But it appears that an escalator is enough different from other pedestrian situations that it doesn't hold here; people seem to look and/or hold the rail when getting off an escalator regardless of how close others are in front of them.

3) Companions frequently check that the following companion is getting on or off safely, usually by checking at the feet of the person behind.<sup>2</sup> I have seen a very small child look back at the feet of his father to check that he is following, which leads me to think that part of the checking behavior is to check that companions are remaining together. But as this behavior seems to occur more frequently for getting on escalators than getting off, and more frequently getting off moving walks, the checking behavior may be related to the difficulty of the step just

<sup>2</sup>See Appendix A, Photograph 2.

negotiated by the first of the companions. This behavior is likely to occur also at curbs, turnstiles, revolving doors. Design implications are not to place obstructions in the zones where this is likely to happen, or create a pedestrian intersection of crossing streams where the checking for companions is likely to occur. Otherwise, there will be serious collisions by the people who turn around slightly to check because they don't stop walking to check. A beautiful illustration of people continuing walking as they turn around to look at something is in Jacques Tati's film "Mon Oncle", where boys hiding on a hill whistle to distract pedestrians near a telephone pole; they frequently succeed in getting people to walk right into the pole while looking around for the source of the whistle.

Behavior of special populations

Although there is quite a variety of behavior observed on escalators, there appears to be quite a few aspects which are typical of specific populations. Included here are hypotheses associated with fairly permanent physical characteristics of people like age and agility, temporary characteristics like clothing worn and objects carried, and interactional characteristics like how many people are together and the general nature of their relationship.

- 1) A person who wears glasses tilts his head at a greater angle than others when getting on an escalator. He also may hesitate slightly longer than others when getting on.
- 2) Older people usually hesitate a little more than others when getting on.
- 3) It is possible that some people who are not agile or have poor balance will use escalators going up but not going down. This may be similar to very small children being willing to go up stairs alone but not down.
- 4) Small children often hesitate before getting on escalators.<sup>1</sup> It could be worthwhile to examine how very small children learn to take that first step. Is learning faster if parents lift them over the first step a few times, or if parents patiently wait and encourage from behind, or if parents get on calling back to the child to follow (I doubt that this last method works at least for

<sup>1</sup>See Appendix A, Photograph 3.

the first time). Are people taught differently, some being told to watch for a step and get on, others being told to step anywhere in the flat section and then to center themselves on a step. If there are different modes of getting on in the adult population, I would expect they come from early training. And of the two modes hypothesized, I would expect the ones using the second one to get on more quickly than the others.

5) An adult accompanying a small child is frequently seen to reach down to take the hand of the child, sometimes slowing down in the approach to the escalator.

6) Objects carried by companions normally seem to be carried in the "outside" hand, meaning the hand furthest from the companion. But on the escalator objects are frequently seen being carried between companions on the same step. My films show many examples of people switching objects from the outside hand to the inside hand, presumably to have the hand nearest the rail free. There even is a case where companions cross over just before the escalator, ending up with shopping bags between them, but by an unusual means.

7) Heavy objects are seen carried more often in right hands than in left hands. Businessmen catching an early Monday morning shut-

tle flight from Boston to New York often held onto the left rail of an escalator, each carrying a large briefcase in the right hand.

8) Children (not infants) carried on escalators were seen carried more often by the right hand than the left hand. This is surprising as infants are usually carried more often on the left shoulder.<sup>2</sup> It is possible that older children being carried for long times are held in the right arm because of the greater strength of the arm (for right-handed people).

9) Many older women are seen going to the right rail of escalators, even to the extent that companions go behind one another rather than side-by-side or alternating left and right.<sup>3</sup> This may happen because of the greater strength in the right arm (again possibly only for right-handed people) for maintaining stability.

10) An escalator seems to preserve the rule that moving pairs of companions stay abreast of one another. More pairs stand on the same step of an escalator than are seen to occur in any other

<sup>2</sup>Conventional explanations for this are that, at least for right-handed people, it leaves the right hand free to do other things like hold the rail. A recent article by Lee Salk, "The Role of the Heartbeat in the Relations between Mother and Infant," Scientific American, vol. 228, no. 5 (May 1973) pp. 24-29 suggests that this and a different explanation by left-handed mothers are rationalizations for an automatic response that may be formed on first contact with an infant immediately after giving birth, perhaps because of the soothing effect on the infant of the mother's heartbeat.

<sup>3</sup>See Appendix A, Photograph 4.

relationship (on a 48" escalator). Sometimes pairs walking in pedestrian situations (and thus some of the pairs approaching escalators) are not abreast, but getting on an escalator seems to provide an opportunity for companions to become side by side again.

It is possible that this side tendency means that companions walk on escalators less frequently than individuals alone. Even when one companion holds back for the other to get on first, he'll frequently be seen to occupy the same step. And when companions turn the tight radius of criss-cross escalators to continue down (or up to the next floor) and one companion gets ahead of the other, they'll eventually be on the same step if they shared the same step on the previous escalator.

On escalators too narrow for adults to stand side-by-side on the same step, pairs are seen occupying alternate sides of adjacent steps. Alternating right and left of companions is also seen in people leaving baggage claim areas of airports, because each is so loaded with baggage that there is not room for 2 adults and baggage on one step.



### Some environmental influences

This section includes hypotheses about the ways in which the physical form of the environment appear to affect behavior. Other attributes of the situation, like the degree to which activities, immediate purposes of users, the urgency of getting somewhere, familiarity with the site, changes in the operation of a place such as being open versus being closed, population density, could also be included here, but the study did not cover enough of the non-visual aspects of situations examined to develop hypothesis in these areas.

1) A single escalator approached from a free field appears to have two zones in which we see different kinds of behavior. The outer zone, approximately 10-5 feet from the first escalator step appears to contain most of the gross body movements in anticipation of the escalator. People in groups start ordering themselves sequentially in this zone. In this same zone, someone may turn around to see if a lagging companion is still within sight, and an adult may put down or pick up a child. There appears to be an inner zone, within approximately five feet, in which we see most of the minor adjustments in anticipation of the escalator: grabbing a child's hand, switching an object to the other hand, taking a hand out of a pocket, freeing one hand from a two-handed carrying position, pulling a shoulder bag to the front to keep it from rubbing against the handrail.

2) In high density situations, people unknown to one another (as far as I can tell) will share the same escalator step, at least at an urban office complex where two different group of companions apparently intermixed on the escalator.

3) An area of floor adjacent to an escalator which has a surface different from the surrounding area seems to contain most of the cross traffic of people coming off the escalator and turning sharply to go in another direction.

4) Especially for short moving walks, and especially when there are other people on moving walks, many people prefer instead to walk alongside because they can walk much faster. Seeing the relative speeds of people walking and people standing on a moving walk seems to encourage more people to walk.

Implication of mechanization

Escalators are only one of the mechanical devices now common in our everyday pedestrian urban environment. We have unmotorized people-processers like turnstiles and revolving doors. We also have automatic doors, elevators, moving sidewalks and ramps. A machine demands the same of everyone, elderly, people with canes, and crutches, people with poor balance, people who don't feel good that day, children, people who are afraid, unfamiliar with what to expect, distracted.

1) Escalators seem to offer the possibility of a new kind of experience while they threaten to deprive us of elements of choice. The machine lets us experience spaces in ways not before possible, as, for example, in the geodesic dome of the U.S. Pavilion at Expo 67, but it also carries us on a free ride that is a special thing in the context of ordinary life. Little children who have mastered the problems of getting on and off love to go on the escalator again and again, even if it means encouraging a parent to go up a flight of stairs to get to the top of an escalator. I once saw a father using a moving sidewalk to demonstrate a principle of physics to his children by jumping in the air and ending up behind where he stood. They continued jumping for much of the ride, thinking about all that was involved.

An escalator eliminates choice in the sense that you can't change your mind and go back the other way; you must go to the

end and then go back some other way. In case there is any doubt that this aspect of an escalator cannot be misused. I include a paragraph from a book written by a man who works for a manufacturer of elevators and escalators.

#### THE IMPORTANCE OF ESCALATORS

There is no better way to steer people in a given path in a building than by providing an escalator. Department store owners discovered this years ago and the most successful stores have their escalators as centers of attraction. The most desirable space is located in line with or next to the escalators. World's fairs and other major expositions have used escalators to direct people to desirable sights and to keep people moving past exhibits to gain maximum exposure.<sup>1</sup>

This aspect of escalators also means that adjacent escalators running in opposite directions may allow acquaintances to start an interaction that the motion of the mechanism breaks off. Could this be detrimental to the social life of a 'home territory' where chance meetings and valuable interactions can be expected to occur even in public places that appear to be serving other purposes?

2) They are attractive nuisances; kids drag on handrails until the relay is tripped and the handrail is stopped. Dogs 'freak-out' at the sight of masters heading on to the machine;

<sup>1</sup>George R. Strakosch, Elevators and Escalators (New York, 1967) p. 173.

it may be said that dogs don't belong in urban environments, but they are present today, and the dog's behavior must have some effect on human behavior.

3) And there is the matter of what these mechanisms and people-processers represent culturally, symbolically, emotionally. Sandra Burton, TIME Bureau chief for Boston, in a speech broadcast over the radio mentioned going to the desert in Mexico as part of her research on the TIME cover story on Carlos Casteneda. She explained a change of perception, a change of her sense of reality that actually did take place on that trip while in the moon-like environment of the Mexican desert. She began to understand how the separate reality described by Casteneda could be more than merely metaphors of experiences. She returned from this environment to Los Angeles by air, and standing on the moving sidewalk in the Los Angeles Airport she experienced direct confrontation of the different realities, finding it difficult to decide which was more "real". When I called to ask her for a text of the speech, she elaborated on the experience, adding that while on the moving sidewalk she had recalled the opening background to the credits of the movie "The Graduate" with Dustin Hoffman standing perfectly still as he waited to be borne along, she thinks, on that same moving sidewalk.

Perhaps these experiences are too personal to generalize from.

But it seems that the most powerful of personal experiences can often lead us to concepts which have general significance. Just because we live in a mechanized society doesn't mean that it is necessarily any less potent for us than for the modern day Ishi, (or urbanite returning from a separate reality) who can be brought into Los Angeles Airport with its moving sidewalks, and escalators, and coffee machines, and dollar-changing machines, and TV monitors, and metal-detecting devices, to a helicopter to take him to a nice quiet motel room or apartment somewhere in that maze.

### Indications of man-environment relationships

This category is a catch all for concepts which must inevitably be accounted for in any general theory about the relationships of men and their physical environments.

1) Immediate events seem to be able to powerfully influence perception of the environment and behavior by changing the emotional context of the environment for an individual. One example of this is my own experience in Macy's (related in greater detail in Section 2.3) where I reluctantly took the escalator to an upper floor when I couldn't locate the elevator, but was grateful to come down on the escalator and be independent of the personnel of the store.

A second example comes from a novel and actually has nothing to do with escalators but is a very powerful and I think very truthful statement about part of human relationships with the environment.

It is queer to be in a place when someone has gone. It is not two other places, the place that they were there in, and the place that was there before they came. I can't get used to this third place or to staying behind.<sup>1</sup>

And such dramatic changes in perception of places do take place. Recently in an airport I found myself a few feet from a family

<sup>1</sup>Elizabeth Bowen, The Death of the Heart (New York, 1938) p. 238

meeting a soldier, apparently their son and brother; it was a meeting full of reserved emotion. What did the airport mean for all of them while waiting to meet, and at the first sight, and during the first moments of readjustment.

2) At the other end of the spectrum in this vague category are habitual responses to environments. When a companion wants to assist another there are probably a limited number of ways it can be done, but the three alternatives I have observed for companions getting on escalators reminded me of behavior typical of other kinds of situations calling for brief assistance. One can let the companion go ahead, which is similar to gesturing someone ahead at a door, and the purpose may not be so much to hold the door open (the door may open the other way, or it may be better for the flow of traffic to push it) as to hold off pressure from others close behind. Another mode is to lend an arm for the companion to take before getting on, and this is very common for stepping off curbs. A more extreme mode is to precede the companion and then turn to lend a firm hand for the companion to grasp, as in boarding a swaying boat. This may mean that people develop standard responses to certain kinds of physical settings, and in new settings where there is no standard response,



they may try modes from other settings.<sup>1</sup> There are a number of different meanings I can now see in the term "standard response" and each might bear examination.

The first meaning of the term refers to an individual's own immediate experience. For example I have lived in a studio of completely built-in furniture, with changing levels and steps throughout. It was possible for me to learn the environment so well that I could unlock the front door and run to answer without paying much attention to what I was doing and not do myself physical harm, or to know when to step up and down to get to the bathroom without turning on a light in the night. This is never wise, but one does become familiar with certain environments enough so that more of this kind of relationship is possible.

The second possible way standard responses could be examined are those built up in an individual's life out of his own experiences. Once you have faced an escalator or swaying boat, you may remember some of your response even years later and use that response in other situations, similar to the following experience:

Recently an old friend told me about taking a bad fall on shipboard as he ran across the deck to get a picture as the boat went under the Golden Gate Bridge.

<sup>1</sup>Gary Hack suggested this last idea and the term "standard response."

"I did not even think," he told me. "My reaction was automatic." I rolled and took the fall with a shoulder roll just as Mr. Johnson taught us in tumbling class thirty-five years ago. I haven't tried that trick in years. Imagine me doing it automatically!<sup>2</sup>

That may be far-fetched to apply to pedestrian behavior, but it seems that our bodies do learn motions and 'remember' them. Each of us has had to learn how to be a pedestrian, and we get a little practice every day.

A third meaning for standard responses is the collection of behavior in a society, not just what an individual does or has ever done, but that which he might have seen others do, or knows is done.

A fourth meaning of the term standard response could be those that are standard by heritage. One could make the argument that there is not yet a standard response to escalators because they are fairly recent environmental configurations. There are probably many able people in the United States who have never been on an escalator, and there are probably millions who rarely experience them. There has not been enough time for the population to slowly discard the less appropriate responses. On the other hand, our ancestors have had more experience with curbs

<sup>2</sup>G. Edmonds and John J. Gibbons, Gymnastics and Tumbling (New York, 1966) p. 5.

(or small abrupt changes in level), swaying boats, and doorways. They would have more experience both in terms of the experience of curbs, boats and doorways being more shared among the population alive at one time than the experience of escalators today and also more experience in terms of that shared experience happening through many continuities of generations. The physical responses of our ancestors to their environments are likely to have had some effect on the nature and uniformity of physical responses in the repertory of pedestrians today.

### Studying behavior photographically

The first attempts at defining this study contained many intentions which have remained, although it was expected that in the process of actually carrying out so exploratory a study many of the original ideas would become redefined.

At the very start, it mattered less to me what I studied than how I would go about it. I expected to examine sites of a particular kind of face-to-face interaction. I would attempt to include an examination of how the participants use the environment (or piece of the environment) during the interaction and also try to see the extent to which environmental variables directly affect the interaction or behavior surrounding it. I also intended to explore using time-lapse photography as a way of increasing the validity of observation and analysis. I wanted to explore some of the advantages photography seems to have over direct observation in lessening the likelihood of misinterpretation through

- 1) its ability to display the same behavior over and over again, perhaps leading to a new understanding only after many viewings, or after viewing in a speed other than "real time",
- 2) its ability to be shown to many observers,
- 3) its elimination of distraction in the observer which might interfere with complete concentration on the behavior being studied,

4) Its ability to record more visually observable phenomena at a given instant than can be noticed by one observer at a given instant. And as a final concern, I wanted to consider the most effective ways of presenting the findings to a designer, for use on a specific project. I was assuming that editing films out of the photographic data would be a great step forward in communicating the kind of information to come out of such a study. An edited film is indeed part of this thesis, and the other intentions have continued to seem reasonable, though not necessarily carried out to the full, and not with the priorities implied in the original description.

There are many useful tips that can be carried over to other photographic studies.

1) Simultaneous photography with super 8 movies and 35 mm slides can be very worthwhile in settling questions that come up when looking at just one kind of photographic record. Part of the advantage comes from the difference between lenses, and two 35 mm cameras with different lenses are also quite useful.

2) When using a time-lapse speed to save film, or to get longer runs, or to eliminate some of the continuity of action it is helpful to shoot in multiples of a set time module, like 15 or 30 seconds. That way the exact speed

of the camera and the duration of events can be determined.

3) Objects in scenes photographed can be used as reference markers if their exact positions and important dimensions are known. I moved a trash can a few inches so that one face of it lined up with stepping off an escalator. Floor patterns sometimes provide a handy reference grid.

4) Shooting at a time lapse speed of 6 frames per second shows much of the continuity of movement and small behavior of interest in studies like this. A projector like Kodak MFS-8 projects at 6 fps so real time can be simulated, as well as allowing long examination of single frames.

Organizing slides and movies so that you can easily find a half remembered image is not easy. TEAG uses a chronological coding system for slides, which I used in this study. For example VA73-S1-2-16 is the full record number of a slide, starting with the photographer and year, "S" for slides as opposed to "M" for movies or "N" for negatives and the month in which taken. The 2 means it was the second roll of slides started that month, and the slide in question is the 16th of that roll (or the 16th kept after throwing and giving away).

Movies are kept uncut, and copies are made of any to be used in editing. Slides and movies taken simultaneously

need be cross-referenced only in the photolog, and for close distinction of the same people shown in movies and film, code numbers can be given to people according to their location on the film. For example, a person can be uniquely identified, instead of approximately like "the second man in the red coat," by a number like 73-M1-1-3-b6, I shrink in horror at the dehumanization it implies but it does allow me to find "old friends" I've grown to know so well in the 800 feet of film I have available to get lost in. The b6 means the person in question is in bunch 6 (perhaps #3 if you need to carry the coding further) in sequence 3 on the first roll of movies taken in January 1973. All my movies involved pedestrians moving in pretty clear directions, so I could code using graphic notations of the directions they went, the order of bunches being determined usually by the order in which they appeared in view. But other kinds of studies could cut up the view into a grid and number people in bunches clockwise or row by row, then adding people as they come into view.

The payoff in setting up even this rigid a system when planning to use the films only heuristically, is that it does allow you to analyze small pieces of the film in as much detail as you like, even trying statistical treatments, without having to identify everyone else on the film first to get the location

of the interesting sequence. Also in some films it is difficult to count people precisely or discern bunches that will have the same boundaries on every viewing, and this system allows a lot of imprecision where it doesn't matter and a lot of adjustment, like fine tuning, that doesn't lead to a lot of re-coding just at the time you really want to look more.



### Four kinds of photography

In Goffman's course on Social Contacts, he used photographs extensively to illustrate his analysis of behavior. Sometimes these were familiar photographs by famous photographers, published in many places like the Family of Man<sup>1</sup>; often they were photos from local newspapers or national magazines. They were all from sources available to us all, and although the photographs were taken for a variety of reasons, the behavioral information was there to be seen. This was very potent for me and had a lot to do with convincing me that his studies were going to be very powerful in increasing our understanding of public life. However, I felt that in many cases film would have been even more convincing because it would help reduce doubts about accurate interpretation. A photograph freezes instantaneous relationships; film can record sequences of behavior, repetitions, and preceding and subsequent conditions.

But there is more required of photography used for research than a transfer from still to motion photography. Photography is a tool, and like other tools it can be used in many different ways, but it is necessary to be aware of the various uses of photography and to use it as a tool only in the ways you intend.

There appears to be four major kinds of photography: artistic-

<sup>1</sup>Edward Steichen, The Family of Man (New York, 1955)

impressionistic, technical-idealistic, journalistic-exemplary, and research-contextual.

Artistic photography can be either impressionistic or expressionistic. It is meant to convey how someone thinks or sees or feels, or it intends to stimulate a variety of thoughts or feelings. Experiment and accident are often welcome throughout the process, as it is an important means of going on to new artistic insights.

Technical photography is often an idealistic illustration of a physical object, but sometimes also of a concept, situation or kind of event. The illustration is pre-conceived and is usually planned so that background information which is seen to be irrelevant is minimized. Manipulation of quality or content which clarifies the intended image is acceptable.

Journalistic photography is an example of a real situation or event, the reporting of what occurred in an isolated instance. Much journalistic photography is pre-conceived, but the photographer gets what he wants by going to his subjects rather than setting them up, finds the best available conditions under which the subject can be photographed rather than creating those conditions, and increases his chances of getting one good example by taking many photographs. To clarify the distinctions, I'll use the example of wedding pictures. One very rarely sees artistic wedding pictures, at least those are not the kind commissioned by the participants. Perhaps a close friend will photo-

graph a wedding as a very meaningful personal event, but usually there is greater distance or greater intimacy between the artistic photographer and his subject than is common at weddings. More frequently, a professional photographer is hired to document the event, not the way a journalist does, recording life pretty much the way it happens to occur that particular time, but more the way a technician does, adding slight manipulations so that the photographs are as much an image of the ideal as the real. Life magazine has covered wedding events in enough detail, contextual detail, that it approaches research photography, and can become a resource for students of public life like Goffman who want to illustrate concepts with examples as undistorted by the act of photography as is possible today.

Research photography, like journalistic photography, is a record of what actually happened. As a record it tries to be complete within its field of interest, to show as much of the context as might be relevant, even long after used for its initial intent. It is planned so that the quality of the image will be good enough to show all the information desired, but otherwise, no manipulation of quality or content is allowed, as it might distort the information in unseen but important ways.

### Integration of observers, photographers, researchers, and designers

Research photography demands a great deal of understanding of the behavior to be studied before taking any pictures. The fact that I had previously studied some of the aspects I wanted to explore allowed me to photograph much sooner than if I had chosen a situation I was less familiar with. As it was, I spent time just observing local escalators trying to define my research interests, before I began systematically photographing in one particular site to see how the viewpoint affected the kinds of information which could be shown. Also the fact that my first photographic sessions were done in teamwork with two researchers<sup>1</sup> who knew a great deal about the sites and the behavioral situations we photographed meant that we could more effectively plan where and when we wanted to photograph. But as this study was intending to define some of the limits of the photography itself, it was not grounded on as much observation as it might have been.

Watching the first film, in which I had used the zoom lens, made me realize that my requirements of the films as viewer were very different from what I, as cameraman, had assumed they would be. In this photography, the viewer and his requirements dominate. For example, zooming in on something interesting which occurs while filming is not a response to the demands of the viewer; planning a new sequence around the

<sup>1</sup>Gerald Davis and Francoise Szigeti of TEAG- The Environmental Analysis Group, Vancouver, Canada.

particular behavior drawing one to a closer look is a response to the viewer.

The photographer should also be the same person responsible for the research, or one of the people responsible, so that he can respond to opportunities of the situation. But this is not the only reason the photographer must also observe while he is photographing. It is useful to have both the memory and the filming of interesting incidents. For example, while filming, I noticed some boys approaching the escalator with a dog, and the dog shied away, confused. I could watch and listen with my full attention to see how they handled the situation while one eye took care of the camera. It happens that the film is a pale version of the incident compared to my memory of it. But the film contains a record of the distant environment, which I was not watching; it contains a record which can be timed; and it shows these boys before I noticed them. The film can also be a reminder to help one write up more complete records of observation, but a lot is forgotten if one waits as long as 2 days for processing of the film, and film is not a substitute for notes on the spot.

It is important to have the technical aspects well enough under control that you can function as a photographer while your mind is thinking about what it is seeing other than through the camera. The mind of the photographer should be divided in two places, neither of which is through the lens of the camera. The photographer is the agent

of the viewer, getting all that the viewer (himself back at the office at a latter date) asks for and filtering all decisions through him. The other part of the photographer is the observer taking in as much of the situation as possible, the observer whose powers are being sharpened by the researcher looking at films in the office.

Using a team in the field requires a longer breaking-in period than working alone. But it would appear that anyone involved in the research should participate at some time in the photography and be able to function in each task defined. The team might settle into roles that best fit the people, but I suspect that trading off roles at the start will help create stronger integration of the team, and more quickly.

I see no reason why designers shouldn't be part of the research team throughout the research especially in exploratory studies where the study can go off in unpredictable directions. I would expect designers to absorb much more information through participating in research, to become better observers, to ask more questions than they have previously, and I would expect them to be more patient in waiting to see what comes of research.

On a specific design project it would be useful to examine some of the designer's images. Often a designer will have particular local sites in mind as examples of what he wants to achieve or avoid in his design. Including some of these in the sites surveyed for behavioral study could strengthen or weaken some of the designer's assumptions,

presumably for everyone's benefit.

We can probably benefit from a seat-of-the pants style in which research includes designers only part-time, summary films are assembled for reference, and local sites are scouted in order to draw up a list of sites to observe at recommended times. Researcher and designer together should work out some of the design implications before the design is fixed so that there will be time to explore further into some of the most questionable aspects.

It is also likely that by including designers in research, we will be pushed to create conceptual tools that are usable during design. At the moment, designers suffer from too much information at the wrong time as well as from not enough information. Until that problem is solved, it might be useful to try to create summarizing concepts that a designer can keep in mind throughout his first sketches, when the appropriate detailed recommendations are too likely to change from sketch to sketch.

Two examples of concepts summarizing research efforts have very similar structure, and lead me to suspect that it may be a handy form for rough concepts designers need at the start of projects. The first comes from recent literature on housing and facilities for the elderly and is the concept "insulation without isolation," meaning that, generally, elderly people prefer quiet and safe places, but that they do not necessarily want to be kept separated from younger people or activities of daily urban life. This poses serious demands on the

design of facilities for the elderly, but giving a conceptual tool like "insulation without isolation" to a designer lets him explore the problem with his skills instead of asking him to wait for the fruits of research. The solutions he proposes could influence the direction of research efforts associated with a particular design, and increase our chances of improving our buildings.

The concept of "concentration without congestion"<sup>2</sup> comes from pedestrian literature, and like the first concept appears to be much more memorable than the specific findings associated with it. Of course, such general principles are almost meaningless without specific hypotheses and findings behind them, but perhaps specific hypotheses and findings are not very useful without such generalizing principles.

<sup>2</sup>Regional Plan Association, "Walking Space in City Centers," Interim Report Summary (not for publication until May 27, 1971), New York.



Other data - "participant observation" and "open-ended interviews"

The first term in the heading of this section is in quotes because it refers not to what is usually meant in social science by the term as a method to plan research around, but it refers to rewarding insights gained from unintentional participation, or rather from participation on escalators not planned in advance as part of the study.

I started the first period of photographic data-gathering unintentionally as a participant observer. I was to fly to the west coast for the holidays and to photograph at airports. I was aware that since I was carrying cameras anyway, I could kill extra time at Logan Airport in Boston by observing and photographing. However, it turned out to be a last minute hurry to the airport during rush hours. And instead of observing, I got to experience frustration at the difficulty of finding the escalator from the lower entrance, where public buses let passengers off. Once I found the escalator, it seemed annoyingly placed out of the way for most traffic. I had a very heavy suitcase with me, and my mind was on that and finding the ticket counter as I rose on the escalator. And I felt very keenly the difference between being on the escalator and thereby somehow being more responsible for my own fate in making the plane or not. When I was on the subway or the bus, my fate was out of my hands temporarily. Being on the escalator was closer to the tension of being in a taxi (on the way to the subway) and having to quickly discuss the situation with the driver because

the traffic began to look too heavy for him to take me to the airport.

Another example which would not have been as potent without the advance definition of the study to underline the insights involved escalators in New York. I was trying to go to an upper floor of Macy's on what was left of a lunch break, and decided it was simpler to take escalators up than to spend time locating elevators. Coming down, the escalators were a relief because I had waited 15 minutes for a clerk to take my \$.96 for something I had foolishly thought essential in my life; she had gone off into the back rooms on an exchange item leaving 6 customers waiting, which seemed unusual, even for replacement help to do. This time, being on escalators meant complete mastery of my fate; my frustration at the clerk would certainly have carried over to an elevator operator no matter how efficient.

In this study I never planned to use methods other than photography, but so often when I answered the inevitable question about what I was studying for my thesis, many people volunteered insights, experiences, and what I now call "escalator stories." An unintended interview came to me when an acquaintance not only asked what I was studying, but kept probing for specific things I was looking for or the kinds of things I expected to find. I found that I wasn't convincing her that my study was worthwhile, so I began to ask her more about how she uses escalators. It turned out that they don't give her any trouble and usually she is thinking about something else when

she is on them; getting on and off doesn't seem to distract her. In response to my asking her about how she thinks automatic doors affect people, she said that especially if you are familiar with the doors, they would also not distract you, at least they would be much less disruptive than doors you push open and where you have to worry about people in front of you and behind you. Then I asked about crossing a street and she commented that if you are in a crowd, you can flow with them without paying attention as much as if you were alone crossing a street. This last particular insight was later echoed by another friend raised in another country and I now think that it is a very interesting hypothesis to follow up in studying pedestrian behavior.

Another example came from a seat-mate on a cross-country flight. She was a sophisticated widow who lives in a small town in Mass. About the only time she comes in contact with an escalator these days is in airports when she flies out to the west coast to spend time with each of her married children. For her, confrontation with an escalator is a moment of concern.

A friend of mine commented that she always hesitates just before stepping on and that she is a little afraid of escalators. In fact, she had discussed it with her psychiatrist and he had related it to a fear of birth. My impression at the time was that she meant giving birth rather than being born, but I decided not to probe her images of escalators because it wasn't central to my research at the time,

there were time limitations to our conversation, obviously it was a rich topic for her and I didn't want to exceed the bounds of our relationship.

Another acquaintance volunteered an escalator story involving an elderly relative of his. She would go up escalators but not down escalators, or perhaps the reverse. He couldn't remember which way it worked but it was quite clear in his mind. It hardly matters how inaccurate his memory is on this point because it is easy enough to check out, especially by asking a sample of elderly people. But it raised something which I hadn't thought of, and an issue which can flow design implications. And this came from my simply saying that I was studying "how people use escalators".

Security personnel and escalator maintenance men, who took special notice of my filming, also had special kinds of information. And when I showed some of the early films informally at MIT, I got a few observations off the films about things I hadn't seen, but even more important, I received a wealth of escalator stories and suggestions of local sites which would be particularly interesting.

Maybe there is something intrinsically interesting about escalators that captures people's interests. But I rather think that any exploratory study about people in situations familiar to most people could easily capitalize on the wealth of insights (good and bad) on behavior that most people have and are willing to share.

It seemed to make a difference how I explained my study. When I said I was "studying behavior on escalators" at the beginning, people seemed not to be as interested, or perhaps not as sure they understood, as when I changed my description to "studying how people use escalators." The second phrase seemed to indicate I was looking at everything about escalators and I would be like a vacuum cleaner for any bits of information they might want to share.

I got in the habit of talking (or rather listening) about escalators with everyone who asked me about my study, and for as long as they seemed interested, especially during photography, where I felt I must talk to anyone in the situation who came up to me. It was a good habit to get into because I talked to a great variety of people, and was occasionally rewarded for taking the time. Usually I didn't have to explain very much, and one or two questions about the situation told me how much they know. The people you talk to will establish the level of discourse, and if you mention jargon terms without quickly putting it in sensible words, they seem to suspect you inhabit a world they can't share, and they won't tell you what they do know.

Of course, such examples of "participant-observation" and "interviews" are as unsystematic and un-research-like as people-watching. But that doesn't mean these sources of insight should be ignored.

### On being ethical and unobtrusive

In the course of doing this study, I have had to confront ethical problems a number of times. Perhaps the first time was in the federal building in Boston, where I went to take some slides to examine what could be seen from certain viewpoints in the 35mm camera. Looking back on it my naivete is astounding, but it was the end of a tiring and frustrating day and I was only concerned with getting different views of the escalator. It never occurred to me to ask permission to photograph in the building. I had just come from the well-photographed Boston City Hall where I had adopted the role of architect taking slides of a handsome building. In both places, I didn't particularly care if people were in the picture or not because I was looking for viewpoints and testing exposures.

When I happened to photograph a security guard on the escalator, he heard the action of my Nikon (not an unobtrusive sound) and his head snapped up so fast that I knew I had seriously misjudged the situation. It turned out that I could take pictures in the federal building as long as I was prepared to give film to anyone who objected, as there are sometimes federal agents in the building who do not want to have their presence in a federal building recorded.

I learned two lessons that day. First, always ask permission to photograph if the site is anyone's territory or under someone's responsibility. The other lesson is that the managers of a place can

grant only general permission; permission to photograph people still must be obtained from the people to be photographed.

A reading of Photography and the Law<sup>1</sup> clarified some questions but left many still unanswered, for experience to fill in. There are few legal restrictions on taking photographs, and those appear more clear-out than the legal concerns with the use of photographs, especially as concerns the right of privacy. The ethical considerations for a photographer are even more complex than the legal interpretations of the right of privacy. So many photography books, articles, and columns<sup>2</sup> discuss the ethics of photography, that it appears to be unresolved on a general level, a matter for each photographer to work out on his own, depending on how much of himself he gives to his subjects.

When photographing for research, there are a number of possible situations:

- 1) The subjects are aware of your study and are willing to

<sup>1</sup>George Chernoff and Hershel Sarbin, Photography and the Law (Philadelphia, 1967).

<sup>2</sup>See Harvey Lloyd, "A Photographer's Ideas," The New York Times, November 29, 1970, Section 2 page 42 for a rather extensive and informative example. And see two reviews of Diane Arbus' work, A.D. Coleman, "Diane Arbus: Her Portraits Are Self-Portraits." The New York Times, November 5, 1972, Section 2 page 33, and Hilton Kramer, "From fashion to freaks," The New York Times Magazine, November 5, 1972, pages 38-39, 63, 65, 68, 70. for very potent examples.

- 1) participate, or don't care about what you are doing or the information you are collecting.
- 2) The subjects are aware of your study and are curious about it.
- 3) The subjects (or potential subjects) are aware that you're gathering information and prefer not to be included. They may have 'good' reasons, 'bad' reasons, unknown reasons, no reason, or prefer to be excluded 'on principle.' The actual reason doesn't matter, as all the situations are the same in terms of the right of privacy.
- 4) The subjects are aware that they are subjects, but you don't know how they feel about it.
- 5) The subjects are unaware that information is being gathered.

I take the position that all people have the right of privacy, and that this right must be considered in every aspect of behavioral research. Ideally, all subjects would be in the first category. Even then, in gathering information one can proceed only as long as one doesn't interfere, recognizing that permission is revokable at any time without cause, and that permission is not open-ended; it doesn't cover aspects not fully understood by the subject, nor implications which surface later. In some situations, you can ask subjects for permission to use the information after you have it, or way in advance, expecting the behavior to be 'natural' when it is photographed. Unfortunately



that is not always possible, and proceeding without explicit permission is not so much a "compromise" of the situation, as a decision on your part to involve the subject whether he cares or not.

To minimize doubts, you can be open and obvious about what you're doing. Very curious people may seem a bother because they can waste your time. However, it is often worth the trouble to explain your intent, as surprisingly often you'll get interesting comments on the situation if you do. It is usually someone familiar enough with the situation to know that you are unusual who asks what you're up to. Also, if someone is curious enough about a situation to ask questions, there is a chance that he is a sensitive observer or an experienced questioner and could have valuable insights to share (as discussed in Section 2.3); respecting the ethical demands of the situation has its occasional rewards. And if challenged with eye contact rather than words, similar indications of openness and deference to rights of other can still take place.

It is likely that the first movies I took with the Nizo camera set a pattern of response to my subjects. If so, I was fortunate in having circumstances push me to film on "home territory" first. I needed to experiment with angles of view, zooming, and the timing of the Nizo in order to plan my research, and as I was going to use the MIT film department's camera, I decided to take one film of pedestrian behavior on campus instead of going into downtown Boston for the tests.

I remember three people, perhaps more, asking me what I was doing during the half hour it took me to film the lobby of Building 10 from the mezzanine. And because I was in my own territory, I felt more responsible to explain than I might have otherwise. Also, because I assumed that anyone on that particular site must be reasonably intelligent, I couldn't easily dismiss any lack of understanding of my explanations. It seemed to be more likely that I was not being clear, than that they were not capable of understanding the subtleties. That now appears to have been very good training.

You can put people at ease by your appearance, hopefully without changing your normal appearance beyond recognition (if that is the case, someone else should be gathering the information because the cultural gap is too great). One need not literally follow "when in Rome, do as the Romans do," but it conveys an acceptance, if not respect, which is absolutely necessary.

When subjects prefer not to be included in your study, sometimes you can press for reasons so that you can get permission subject to certain conditions. You can agree not to collect certain kinds of information, or guarantee confidentiality, or agree to submit all data for approval before you can use it or retain it. Some subjects volunteer readily when they know others have refused; if more subjects shy away because they know others have, maybe the study should be re-examined. Often in situations where one can gradually become known,

permission is eventually granted.

If you don't really know how subjects feel about being photographed, you can try to provide them an easy way out, (physically another path, socially an acceptable reason). You can simply stop photographing when there is any reluctance or hesitating; in fact I found it impossible to continue photographing when a subject spotted me behind a column to which I had gradually retreated in an effort to be more unobtrusive. His simple comment in passing of "that's not fair" was perfectly correct and forced me to consider why some of my photography had been fair and some had not. If subjects can notice you and understand what you are doing before they come into view, then they have time to decide whether to participate or not. A small number of people will duck out of the way if given the chance (these people are different from those who hesitate to walk into view because they might "spoil" the photography). When photographing an approach to an escalator from the floor level, and sensing that my photography would probably catch many subjects by surprise, I decided to stand in the corridor that most would be coming from and film their backs as they would pass me and get on the escalator. During the filming I heard a man behind me suggest to his companion that they stop off for coffee rather than be in my films, an acceptable "out" for all of us.

If people don't know that you're gathering information, you don't fully know how to be responsible for the information collected, and

you run great risks of missing some of the behavioral context. Even if people object to being photographed, knowing why can tell you significant things about the situation.

I have placed ethical considerations before the ones involved in not changing the phenomena being observed, not only because they seem more important, but also because being an ethical photographer seems to solve many of the problems in trying to be an unobtrusive one. In addition to having a physical appearance that "fits in," being open to answer all questions, and responding to questioning glances, it is important to check that one's actions aren't very different from those of others nearby, that one's actions aren't very unusual for the location chosen to photograph from, or that the location itself is not out of the ordinary. Most of the time, having a companion tends to make people feel less uneasy about what you're doing, especially if the companion is known by the subjects or belongs to the environment, but it may also make it less likely that people will come up to ask you what you are doing.

Intermittent camera sounds in quiet spaces are very noticeable. It should be possible to find a way of photographing everything with available light. It is better not to use a tripod, although a tripod is sometimes an excellent announcement of what you are doing. And for people who freeze in front of cameras in spite of themselves use telephoto lenses or pre-set the camera and then wait for what you want

to photograph.

Regarding use of the photographs I have no personal experience, only an interesting comment by an anthropological research photographer.

What is public, what is personal, and what is threatening become acutely important when we consider the feedback of pictures of community interaction. Errors in taste as to what photographs to show to whom can cause more explosions than any other failure of protocol in the community study.

A critical example of improper feedback was the interview use of the photographs... To gain insights into interpersonal relations the fieldworker had to work with a native picture reader to cross-check the identification and position of participants... To his satisfaction, he had no problem obtaining rewarding interviews based on the photographs. In fact he was swamped with invitations... It had been an unfortunate tactical error to show any of these photographs to the public. Probably the set as a whole should have been shown only to our one trusted key informant, who in the end gave us the most complete recording of the event.

This experience suggests a safe rule-of-thumb protocol. Pictures made in the public domain can be fed back into the public domain. Pictures made in private circumstances should be shown only to people in these circumstances...<sup>3</sup>

<sup>3</sup>John Collier, Jr. Visual Anthropology: Photography as a Research Method (New York, 1967) p. 44.

### Photographers and anthropologists as witnesses

Some photographs are arresting, powerful clear statements. And some photographers produce more powerful images or a greater number of meaningful images. Many people are asking why this is so, why are some able to do much more with a camera than others? Photography books and magazines are full of attempts at explanation. My feeling is that it is the photographer's understanding and acceptance of what he sees that makes the difference, rather than his expertise or even his experience as a photographer capturing and communicating.

Eudora Welty, a novelist, and an excellent one, has published a book of photographs which she took in the '30's in the south during her first job just out of college. Of this experience she writes,

A better and less ignorant photographer would certainly have come up with better pictures, but not these pictures; for he could hardly have been as well positioned as I was, moving through the scene openly and yet invisibly because I was part of it, taken for granted... And though I did not take these pictures to prove anything, I think they most assuredly do show something which is to make far better claim for them... I learned from my own pictures, one by one, and had to; for I think we are the breakers of our own hearts. I learned quickly enough when to click the shutter, but what I was becoming aware of more slowly was a story-writer's truth: the thing to wait on, to reach there in time for, is the moment in which people reveal themselves. You have to be ready, in yourself; you have to know the moment when you see it.<sup>1</sup>

Anyone who wants to see more for himself has much more to show

<sup>1</sup>Eudora Welty, One Time, One Place (New York, 1971) pp 3-8.

to others. In this respect, there is a remarkable similarity in attitudes of good photographers (and good anthropologists and apparently good novelists) they approach subjects. Above all they want to understand. The essence of the approach of these people to life is that they are witnesses, hopefully no more nor less.

Dorothea Lange's sensitivity to life and the people she photographed were carried over from her work for the California Division of Rural Rehabilitation of the State Emergency Relief Administration in 1935, and later for the federal Resettlement Administration (later renamed Farm Security Administration) into all her following work. The American Country Woman<sup>2</sup> is found in photography sections of bookstores, but is actually a piece of anthropology. Her own explanation of the collection is quoted in the foreword: "This collection consists of fifteen personages, and all but two are accompanied by a photograph of the place where she lives. In some cases this is the exact house, in others it is the environment. The photographs are carefully captioned."<sup>3</sup> Sometimes these captions are the words of the woman photographed, sometimes other observations about the situation or the events around it. She explains more: "This is a body of work assembled over years. The edition will, I hope, be regarded as a unit and not be dismembered, and safeguarded for its historical value

<sup>2</sup>Fort Worth, Tex., 1967.

<sup>9</sup>Ibid., p. 9

as well as currently used and enjoyed."<sup>4</sup>

She used methods of documentation not normally used by photographers, and in the back of The American Country Woman are examples of a "Subject Autobiography" written at her request, and "Typical Field Documentation" which apparently were background for all the photographs included. (A copy of the latter is included here as Appendix D).

This is not to imply that good anthropologists and good photographers are value free. Anthropology has had a long "cultural evolution" and "cultural relativism" as rooted in ethnocentrism.<sup>5</sup> And the direct approach of facing the problem is to try to test the values against the real world. Good anthropologists and good photographers, perhaps like other seekers of truth search for the things which could shake their beliefs, their value systems, and in the process let things and people reveal themselves.

Intentionally the subject of this study was picked out of the realm of public life, culturally familiar to me. That seemed to be a good starting place for training to become a better observer, at least a more systematic one. It seems that if we want to study the private realm, like home, we should train ourselves and develop the tools

4

Ibid.

5

David Bidney, "The Concept of Value in Modern Anthropology," Anthropology Today, An Encyclopedic Inventory, Intl. Symposium on Anthropology, Kroeber ed. (New York, 1952) pp 682-699.



we need in the public realm before we move towards more private aspects of life. The problem will be to find ways of studying private realms like homes without destroying the observed behavior, or the home. The only way to do that, it seems to me, is to observe without using intruders or intruding techniques, which means each of us explores his own private realms. Hopefully it is possible to systematically observe and come to understand aspects of one's own private life without violating one's privacy. It becomes a problem of being a real participant and an accurate systematic observer simultaneously. Who would want to live outside his own life for the sake of knowledge? It may not be possible to become both participant and observer in the private realm the way one can become both observer and photographer in the public realm. But if not, we're sure to be led into research which makes the private realms less private.

We have seen a taste of what is to come in "An American Family" on television,<sup>6</sup> with separation of the husband and wife during the six months of filming, and the wife announcing the break to the husband on camera. In a situation like that, not only do we not know much about the behavior on film, but we also don't know our part in the breakup (and I use "we" here because we are all part of the general public for which that particular show was done, part of the motivation

<sup>6</sup>N.E.T. production, broadcast in 13 hour-long segments, winter 1972-73.

to do it). We can all think of families which we think would be more valuable to study, but we wouldn't wish the examination on them. Even a man like Oscar Lewis must have caused the Sanchez family to behave differently; Lewis was from another country and culture, and he came just to study them.

It seems that the only alternative is to study private realm, like the family in the home, from the inside, and to find tools that can be taken home by novices, like Eudora Welty. Someone may object that while she may have been a novice with a camera, she was a very sensitive observer. I believe that there are enough sensitive observers and enough potential sensitive observers around today among good photographers, good anthropologists, good novelists, and ordinary people that we can let such novices show us what is important in the private realm if we give them the tools and the conceptual tools that will help. That way we can begin to understand what is important in the private realm without destroying it or anyone's personal life in the process.

This paper has been presented as a collection of statements on very different subjects related to one study. The epilog tries to summarize what has been learned from this study and clarify what should properly follow.

What can be said about escalators that will be useful to designers? Although it is not possible to make absolutely reliable design recommendations for escalators in general from this kind of study (because of the relatively few physical configurations, kinds of populations and social settings examined), it is possible to summarize some of the preliminary hypotheses into general principles to keep in mind during design. In Section 2.2 I gave two examples of what I feel are potent concepts summarizing research. At the risk of running a good thing into the ground, I offer here a summary concept of similar form for this study: escalators should provide greater convenience or offer the opportunity for a different kind of experience without limiting acceptable behavior or allowing access through alternative routes to be de-emphasized or eliminated. In capsule form, escalators should provide convenience and experience without limiting choice.

Since this summarizing concept is intended to serve as a memory aid for many of the specific hypotheses developed in this study, I will give a few examples of how it is related to ideas presented in Sections 1.1 to 1.5. Conventional wisdom recognizes some of the aspects of

escalators which offer convenience and experience, for example by providing a dynamic overall view over an area. Certainly escalators reduce the energy expended by people in changing levels.

Another aspect of convenience is that escalators and moving sidewalks can increase the flow of large numbers of people; very slow people are carried along at a reasonable rate, rather than slowing others down. But what is not understood, even in recent books about escalator design in buildings, is that the capacity depends to a great extent on how long it takes people to prepare to step on an escalator or moving sidewalk (by grabbing a child's hand, pausing to switch an object to another hand, taking time to look carefully), rather than depending primarily on the speed at which the mechanism operates. In fact, it appears that the greater the speed of the mechanism, the longer it takes people to step on. This aspect of capacity may change during the day, as population and setting changes.

Moving sidewalks appear not to serve the same function as escalators in moving slow people faster or in increasing the capacity of the path, as moving sidewalks move much slower than a normal pedestrian pace. In the San Francisco Airport, for example, a moving sidewalk approximately 145 feet long takes 75 sec. to ride while people walking next to it cover the distance in 35 sec., which means the mechanism runs at almost half walking speed. People who walk on the mechanism cover the distance in 25 sec., a very short saving over walking and not always a possibility, as groups on moving sidewalks in North

Americans tend to block the whole width regardless of signs advising riders to keep to the right. So it would appear that people who are concerned about time will walk alongside a moving walk if there are even sporadic groups on it, while the people who use the moving walk rest bags, lean against rails, converse with friends until the end of the ride. The people who are concerned about time, which is likely to be a relatively high percentage of the population in an airport, are usually not given the clear information about relative speeds comfortably to decide before getting on whether to walk, ride, or walk past others on the mechanism.

The whole issue of predicting capacities of escalators and moving walks should be reconsidered, based more realistically on the likely step-on times for different population groups, the likelihood of riders to walk along the mechanism as it moves, the likelihood of different riders to stand adjacent and close behind others. Below is an example of current practice in estimating capacity which shows how little these behavioral variables are considered.<sup>1</sup>

Escalator capacities are generally expressed in passengers per hour. These capacities are optimum and assume that each step carries either 1 1/4 or 2 passengers, depending on the width. Such output is possible for about 5 min at a time. A reasonable estimate of actual output would be from 65 to 85 percent of optimum output, as in Table 9.1

<sup>1</sup>George R. Strakosch, Elevators and Escalators, pp.176-177.

Table 9.1 Escalator capacities (30° incline)

Width	Speed	Maximum Capacity	Nominal Capacity (75 percent)
32" (1.25 pers/step)	90fpm	425/5min, 5000/hr	319/5min, 3750/hr
	120fpm	566/5min, 6700/hr	425/5min, 5025/hr
48" (2 persons/step)	90fpm	680/5min, 8000/hr	510/5min, 6000/hr
	120fpm	891/5min, 10,700	668/5min, 8025/hr

To the extent that people are discouraged (by building layout, lack of signing, and other design elements) from using alternate un-mechanized paths, more people who have difficulty getting on will be using the mechanisms, reducing capacity, reducing convenience to the users, and possibly also reducing any positive aspects of the ride as an experience.

Limits to choice of other paths and limits to a wide range of behavior can occur because of the way escalators have been incorporated into buildings. Very long uninterrupted escalators and moving sidewalks preclude stopping along the way and going back. It would appear that there is no limit to escalator technology, with single escalators reaching many stories high, apparently for as many as eight stories. One would hope that if such long escalators continue to be installed in buildings, they are intended purely to provide an experience, rather like a ferris-wheel ride, and that they serve no major functional purpose.

Separation of movement of different directions, up in one part of a building, down in another, is a common arrangement that seems not to fit with many people's behavior (because people don't usually notice

the direction of travel until quite close) and thus tends to limit choice. Often this is done deliberately "to steer people in a given path" (see page 36) but without fully understanding the implications. Also, since the one-way aspect of escalators reduces choice, escalators going in opposite directions should be placed to follow the convention of keeping to the right rather than the reverse. Blocking of the view of where the escalator leads, by enclosing around it also inhibits choice in a sense because it creates a much narrower opening than would be offered by a stair with equivalent capacity.

Separation of escalators from other alternatives, like ramps, stairs, and elevators also reduces choice for many people. It should be possible to create major paths and collection points, but minor ones should be visible and convenient. Stairs have been natural gathering places ("I'll meet you in 15 minutes at the stairs") which still work even when the specific meeting place has not been named. Escalators could also be gathering places, but should not create ambiguous meeting places separate from those created by stairs, entries, and similar places. If adding an escalator to the design confuses normal pedestrian procedures, including meeting someone partway along the path they're expected to come from, then choices we are accustomed to are being eliminated by the design.

The designer should not forget to consider even the extremely unlikely situations in which loss of choice might occur, especially emergencies, when given paths might not be available. He should

consider the implications of blocked paths during the daily cycle of a building, during maintenance and alterations, when an escalator is stopped for 15 minutes, when an escalator is reversed, and when major pedestrian flows are changed. Escalators, like other fruits of our technology, are a mixed blessing. Loss of choice is just one of the disadvantages, but one which should be fairly easy to minimize by careful consideration during design.

This study has only begun to uncover how it is that people use escalators, There is more to be known and although further study will be of value, I hesitate to suggest deeper exploration at this time in the direction started here. I feel this even if methods are expanded to include more than just photography, and even if a greater range of situations is covered (like escalators in an exposition, in a very dense central business district, in a church, an escalator internal to functions of a single organization, a multi-story escalator system). Escalators are only a piece of the public experience and there may be much more value in exploring other kinds of pieces or doing other kinds of rough studies (for example studies centered on building types, types of users, or types of activities) before advancing to more specific in-depth studies of behavior on escalators using more sophisticated techniques than attempted here.

The study reached a natural stopping point because there is a limit to the information available from visual observation alone.



Without a deeper understanding of the operation of the whole setting, there are many kinds of questions which remain unanswered, for example, what is the effect of an escalator on the quality of interaction among companions? An environmental psychologist might push to explore questions like this, understanding just enough about a number of given settings and a number of subjects to start formulating generalizable hypotheses. But as I was concerned with trying to use the information obtained about behavior, this need for a change in the study was an opportunity to examine relative costs and values of the information obtained before continuing. This study involved relatively low costs to the researcher as well as low ethical costs to the subjects included; in a deeper study continuing in the same direction the information would be much more difficult and costly to obtain. The value of the information should be judged partly by the capacity of the design profession to use the information, and in this case it seemed that further study could not serve as well as a change in direction.

Although this particular study has ended, there are a number of different directions that following studies could usefully take at this time.

1) Since this study has started to define concerns that should be examined during the design process, architects and escalator representatives can examine the way a particular escalator is to be used in a particular building. Conventional wisdom about escalators can slowly improve even without studying in a very sophisticated way the general

implications of escalators in the life of buildings. In fact, building a body of case studies of what an escalator means anthropologically, sociologically, psychologically, as well as functionally, structurally, economically, and aesthetically is a good basis for a study which can generalize over many kinds of escalators in many kinds of settings.

2) Other pieces of the public experience, or of the daily experience of individuals, need to be explored and tied to this preliminary look at escalators. There are many analogies between behavior on escalators and behavior at other kinds of sites, but the analogies in this paper are somewhat hit-or-miss, and are only intended to be illustrative of possibly similar behavior. A systematic exploration on a rough level, like this study is for escalators, is needed for the field of pedestrian experiences.

3) Another direction is to look at some implications of mechanization in society, as related to limited settings similar to my thesis study (like turnstiles, revolving doors, and air doors for example). It should be useful to uncover numerous examples where we have come to believe in the appropriateness of technological innovations. Too often these innovations have become widespread and made their alternatives unpalatable and eventually unavailable.

A process particularly appropriate to this last direction for further study is collecting "stories", as I started to do at the end of this study. While perhaps not deserving the label of a method,

collecting stories seems to be a valuable process for early stages of an exploratory study where the direction and range of interests might not be known in advance, and where one of the purposes of the study is to state that definition.

I hope that the study described in this paper encourages others to attempt similar rough studies in areas where they suspect conventional wisdom leaves a lot to be desired. There is a lot more that can be done in helping us become more systematic, reliable, and responsible in discovering how people use the buildings we design; and I believe that the people involved with design should be closely involved in determining the directions these studies take.

Photographs

1- Apparently it is more difficult to get on an escalator than to get off. Many people who touch the handrail and also look at the first step when getting on, get off by just looking or just touching the handrail. The lady on the right of the left picture gets off the escalator without using her hand out holds the rail when getting on in the right picture.

Implications might be that capacity will be lowered where inadequate space is provided for preparation in the approach to an escalator. People will take a certain amount of time to free a hand or adjust packages before getting on an escalator. (See Section 1.1, Item #1)

2- People frequently check behind them to see that companions are following safely, sometimes by glancing down at the step to be negotiated, and at other times, like in these illustrations, by glancing around while moving ahead. It seems to occur more frequently getting on escalators than getting off and more often getting off moving sidewalks than getting on, which may indicate the more difficult parts of each mechanism.

As people continue to move forward while glancing behind them, it is desirable to leave a zone following moving sidewalks and escalators free of obstructions and cross traffic which people may run into while looking behind. (See Section 1.1, Item #3)

3- Small children, elderly, and people who wear glasses are frequently seen to hesitate before stepping on an escalator. In the right photo, the child steps on the fourth step after his companion, although he was the first one to reach the stepping on point and then he had held back behind others as shown in the left photo.

Such hesitation affects capacity and must be taken into account in the places where these special populations are present in significant numbers. Others may pass by someone taking great care in getting on, but less often when a companion waits for the one hesitating, and also less often when the approach to the escalator is from a free field, where the order in which people will get on is anticipated way in advance.

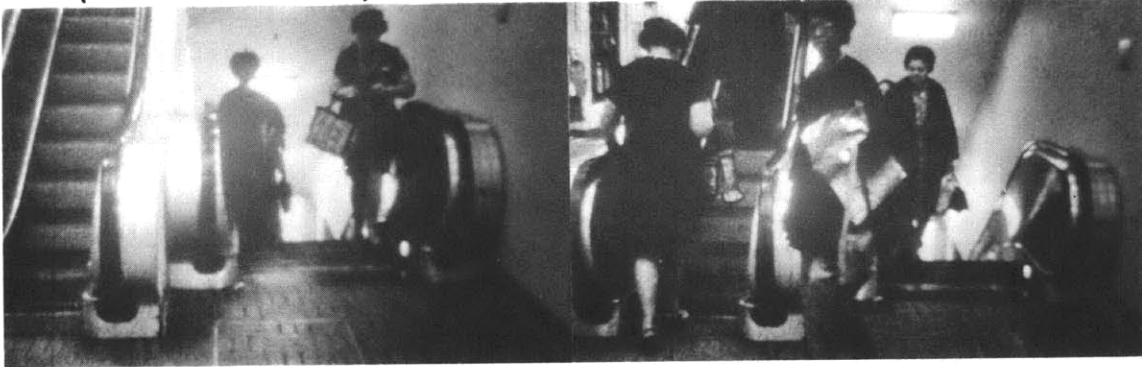
(See Section 1.2, Item #4)

4- Although many companions get on the same escalator step, older people, like the two women in light colored clothing, are sometimes seen to line up behind one another on the right rail. This may be a preference to use the right hand to get greater stability rather than an application of keeping to the right so that others may pass on the left.

An implication of this is that the capacity of an escalator may be greatly reduced for populations of mostly elderly people, but that for populations of people covering a range of ages capacity may not be reduced, or may actually be increased because a passing lane is created which otherwise might not exist. It could also mean that people who prefer the right rail could wait until others merging from the right have gotten on. (See Section 1.2, Item #9)

1 - (VA 1973 M3-2-2-b2)

85



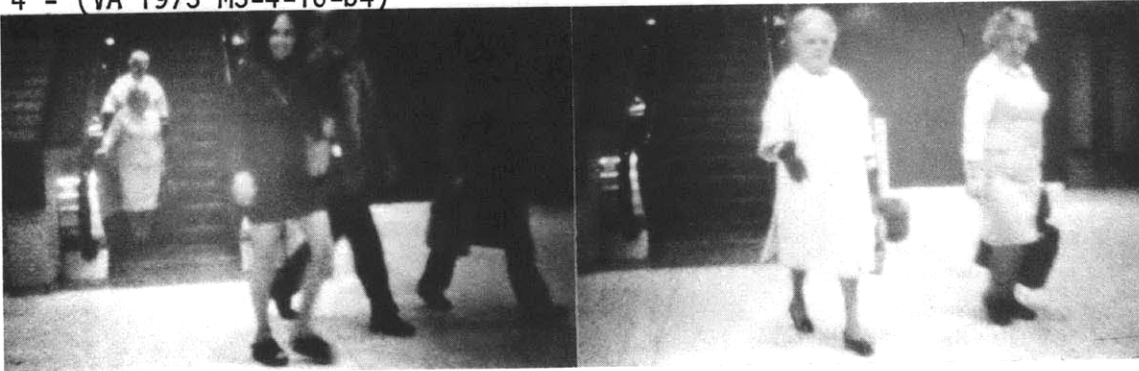
2 - (GD 1972 M12-3-4-b9)



3 - (VA 1973 M3-5-7-b7)

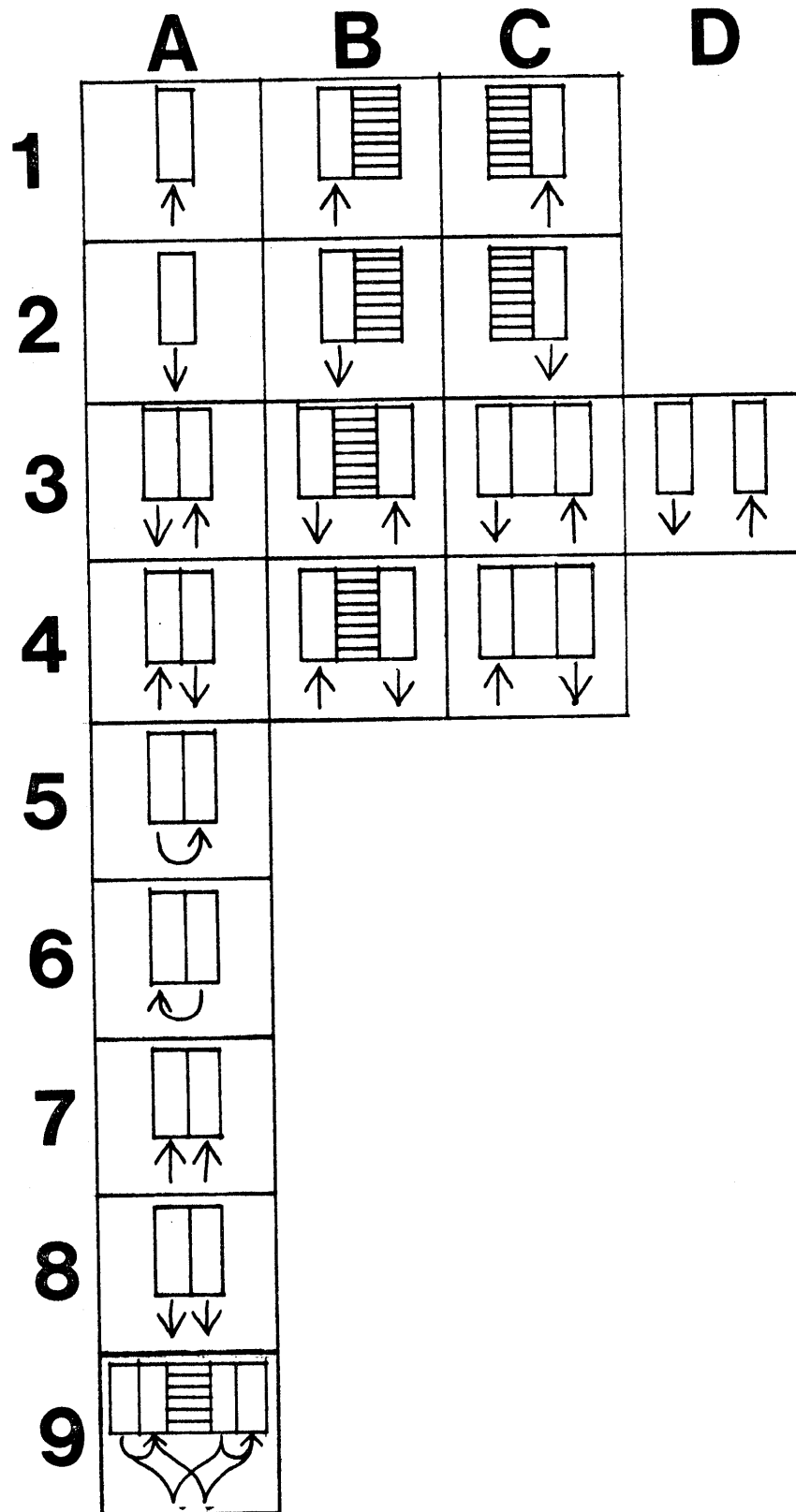


4 - (VA 1973 M3-4-16-b4)



Situations Photographed

Airports-	Seattle-Tacoma International Airport, Seattle, Washington. San Francisco International Airport, San Francisco, California. Logan International Airport, Boston, Mass.
University-	M.I.T. Cambridge, Mass.
Department Store-	Filene's, Boston, Mass.
Shopping Center-	Worcester Center, Worcester, Mass.
Office Complex-	Prudential Center, Boston, Mass.
Public Transit-	MBTA, Airport Station, Boston, Mass.



Location				Apparent Population										Time				Physical Environment																
public transit	office complex	shopping center	dept. store	university	airport	staff	habitués	tourists	families	peers	individuals	elderly (any)	adult	youth	small children (any)	male (mostly)	female (mostly)	S M T W T F S	holiday (or near)	non-holiday	time of day	(24 hr clock)	indoors	outdoors	ped. corridor	stair	moving walk	escalator	configuration	getting on	getting off			
					x			x	x			x	x	x	x			S	x		1	0	x					x	1A	d	n			
					x	x		x	x			x	x	x	x			S	x		1	7	x		x		x		3A					
					x	x		x	x			x	x	x	x			M	x		1	6	x		x		x		3A					
					x			x	x			x	x					T	x		0	8	x		x									
					x			x	x			x	x	x	x			T	x		0	9	x					x	3B	d	nu	p		
					x			x	x			x	x	x	x			T	x		0	9	x					x	3B	u	pd	n		
					x			x	x			x	x	x				T	x		0	9	x	x			x		3D					
					x			x	x	x	x	x	x	x	x			W	x		1	9	x				x	2A		d	n			
					x			x	x	x	x	x	x	x	x			W	x		1	9	x				x	4B	u	pd	n			
					x			x	x	x	x	x	x	x	x			W	x		2	0	x				x	9	u	pd	n			
																															d	nu	p	
					x		x	x			x	x	x			x		F	x		1	2		x		x								
					x		x	x	x			x	x	x	x			x	R		x	0	5	x				x	5	d	nd	n		
					x		x	x	x			x	x	x	x			x	R		x	0	5	x				x	5	u	pu	p		
					x		x	x	x			x	x	x	x			x	R		x	0	6	x				x	6	u	pu	p		
					x		x	x	x			x	x	x	x			x	R		x	0	6	x				x	5	d	nd	n		
					x		x	x	x			x	x	x	x			F		x	1	2	x				x	6	u	pu	p			
					x		x	x	x			x	x	x	x			F		x	1	3	x				x	8		u	p	d	n	
					x		x	x	x			x	x	x	x			F		x	1	3	x				x	7	u	p		d	n	
					x		x	x	x			x	x	x	x			x	F		x	1	4	x				x	6	u	pu	p		
					x		x	x				x	x	x				F		x	1	5	x				x	1	Cu	p				
					x		x	x	x	x	x	x	x	x	x			F		x	1	5	x			x	x	2	B	u	p			
					x		x		x	x			x					F		x	1	6	x			x	x	2	B	u	p			
					x		x					x	x					F		x	1	6	x			x	x	1	B	d	n			
					x	x		x	x	x	x	x	x	x	x			F		x	1	7	x			x	x	2	C	d	n			
					x		x					x	x					F		x	1	8	x			x	x	2	B	d	n			
					x	x		x	x			x	x	x				F		x	1	8	x			x	x	3	Bu	pd	n			
x							x	x				x	x	x				F		x	1	8	x	x			x	2	B	u	p			
					x		x		x	x	x	x	x	x	x			A		x	1	2	x				x	3	Au	pd	n			
					x		x		x	x	x	x	x	x	x			A		x	1	3	x				x	3	A	d	nu	p		
					x		x		x	x	x	x	x	x	x			A		x	1	4	x			x								
					x	x	x					x	x					M		x	0	7	x			x	x	3	Bu	pd	n			
					x		x					x	x					M		x	0	8	x				x	3	B	d	nu	p		
					x		x	x				x	x					W		x	1	2	x	x			x	4	C	d	nu	p		
					x		x	x				x	x					W		x	1	2	x	x			x	4	Cu	pd	n			



"Photolog"

This recording device was created at TEAG - The Environmental Analysis Group to suit this study, although it grew out of various formats developed earlier for making notes during photography and was designed to serve in other kinds of research as well.

The photolog is a book slightly under 8 1/2" by 5 1/2", to fit in a pocket. It opens alternately to two different kinds of pages (see pages 91 and 92). One provides room for a diagram of the site and calls for special kinds of notes, with some room for a running log of photography and observation. The second kind of page is only the running log. A new section, beginning with a diagram and notes is started at each new site; different viewpoints at a site can be added to the diagram and continued on the running log.

The example page from December (page 91) shows how the photolog is used to keep track of simultaneous photography by two cameramen filming in modular time units. The page from March (page 92) is an example of records of one researcher filming only when people appear, and includes some observation notes.

The identification coding, by numbering bunches of people seen in each sequence, was added later. This identification code, described in Section 2, is based on the numbers of people appearing in movie sequences. Groups of people, referred to as bunches because one cannot always assume they are companions, are numbered sequentially

as they appear on film. For example, on the form shown on page 91, 23 bunches of people are seen in sequence 8 of M12-2, while slides 20-24 of S12-6 capture some of the same events. The first bunch was 3 people coming from the left (the major direction) to use the moving sidewalk. Sequence 9 of M12-2 was taken over 4 time modules of 30 seconds each, thus lasting 2 minutes, and slides 25 to 27 were taken at some of those same 30-second intervals.

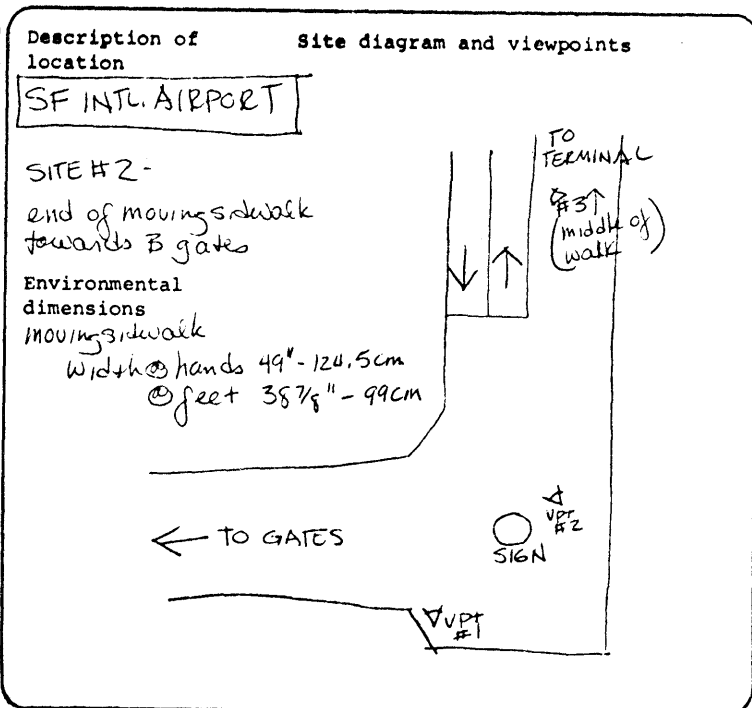
The left-hand columns may be used for any number of purposes. In these examples, one was used to indicate those bunches which appeared on slides taken at the same time as movies. The other column records the vinyl slide sheet where each slide is located.

Lighting f.c./lux 336 (3) deg.k. 3400  
 Acoustic envt. step on

Population

Activity  
 mostly arrivals  
 from United #527  
 Eugene, Oregon  
 & Medford

Temperature indoor outside  
 Exterior weather



Coding	SHEET #	SEARCH #	Z	FRAME	Camera	Time, Descriptive comments	Photo. tech. variables																
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
						17:20	VA @ VPT #1																
						17:20	non-GD on moving sidewalk approaching vpt #1																
7	16,21			20			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
7	1,2			21			3	5	3	4	1	4	1	1	3	2	1	4	2	2	3	2	1
7	18		✓	22	↓		→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
7	18			23			aboard aircraft																
7	9,22			24			18	19	20	21	22	23	same man										OR TRUNK DISKET
							2	2	1	1	1	1	50 total										
							↑	↓	↑	←	→												
							SE1 SUMMER pilot																
						17:30	GD @ VPT #2 & #1 VA @ VPT #2 w. N120																
8	6,7,8			25			1	2	3	4	5	6	7	8	9	10	11	12	13				
8	9,11			26			1	1	2	2	1	2	1	3	2	2	5	2	2	26 total			
8	12,15		✓	27	↓		↓	↓	↓	↓	↓	↑	↑	↑	↓	↑	↑	↑	↑				
8	12,15+			28			pink with suit bag loses balance																



Film roll no. A112-2, 112-6, 112-7  
 Movie modules circled are 30 sec.  
 Slide nos. circled, taken @ 30 sec.

Viewpoint(s)

Project no.  
 Project name EDRA 4  
 Date 24 DEC 72  
 Page no. 12

Coding data	Camera		Photo tech.
	Time	Descriptive comments	
25	19	4:10	reading 1/60@4
25	20		
25	21		
25	22		
25	23	Kids like to see up stairs & wait at top for family. Just now a boy approx 3 years casually leaned at the top saying to family coming up on escalator "what's keeping you guys so long?"	
	4	4:13	1   2 1   1 →   ↓
	5	4:14	1   2   3 5   1   1 ↓   ↓   ↓
	6		
	7		
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	100		

skicup with dolly comes up esc. - has to carry dolly down stairs.

Film roll no. \_\_\_\_\_ Viewpoint(s) \_\_\_\_\_  
 Movie modules \_\_\_\_\_ sec., Slides @ \_\_\_\_\_ sec.

Coding data	Camera		Photo tech. variables
	Time	Descriptive comments	
6		1	
7		redcoat	
8		with suitcases grey with crutches in corridor to right	
9	4:17	bunch # 1   2   3   4 1   2   1   1 ↓   ↓   ↓   ↓	



Film roll no. \_\_\_\_\_  
 Movie modules circled are \_\_\_\_\_ sec.  
 Slide nos. circled, taken @ \_\_\_\_\_ sec.

Viewpoint(s) AIRPORT-SITE #2

Project no. \_\_\_\_\_  
 Project name THESIS  
 Date 2 MARCH  
 Page no. 10

"Typical Field Documentation"

from Dorothea Lange, The American Country Woman (Fort Worth, 1967) p.71.

North Carolina

DATE: July 5, 1939

LOCATION: 1 and 1-tenth miles S.E. of Gordonton, Person County.

MAP CODE: Person 21

SUBJECTS: Annual cleaning-up day at Wheeley's Church.

GENERAL NOTES: Accidentally learned at Gordonton that "everybody in the community was gathering at the church, going to take their dinner." Was not able to get back in time to see the dinner in progress and most of the cleaning done. Farm women of all ages, men and children; one six-month old baby and one woman on two crutches were still there finishing up the cleaning at about 2:30. There were fifteen cars "a good many people" left before dinner. Had to talk to a succession of people: had to ask some of the others: had to ask the older members: had to talk to the head deacon to get permission to photograph. They very much want to have a print showing the church and the grounds. Very proud of their church, spacious well-shaded churchyard, well kept, (though very simple) cemetery, and very proud of the fact that they keep everything so tidy. They had done a thorough job of sweeping the yard close to the door and raking the rest, about five acres. The church is primitive Baptist—"don't know whether you ever heard of that kind or not," and is "over a hundred years old" but no one seemed to know exactly. It has 70 members and "lots of friends around who help out." Preaching once a month and the church is crowded. Will probably hold 500. Cleaning the church consisted of sweeping, dusting, washing the windows; "we think we ought to keep as nice as we do our homes." The church is sealed, painted white inside, is heated by a small coal circular with a pipe suspended from the ceiling nearly two-thirds of its length; "that keeps the back of the church warm." A table in the space before the pulpit had a large cover of coarse crocheting and a tight little nosegay of flowers. No pictures taken inside the church because of hesitation of church members. The people were substantial, well-fed looking, the women in clean prints mostly ready made, the men in clean shirts and trousers, some overalls. Good-looking children. Many addressed each other as cousin or aunt, etc. Very gay and folksy—evidently having a good time together. Cars new or relatively so and not all Fords. A group of solid country people who live generously and well. Much interested in the photographing, much joking about posing.

Group on church steps: note rakes, yard brooms made of dogwood, homemade buckets with dippers. Note woman wearing bonnet, front and side view. Note homemade gloves. This woman was named "Queen."

July 9 is "preachin' Sunday" and got permission from deacon to return to make pictures of the congregation.

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