Chapter 7

OBSERVING PHYSICAL TRACES

Observing physical traces means systematically looking at physical surroundings to find reflections of previous activity not produced in order to be measured by researchers. Traces may have been unconsciously left behind (for example, paths across a field), or they may be conscious changes people have made in their surroundings (for example, a curtain hung over an open doorway or a new wall built). From such traces environment-behavior researchers begin to infer how an environment got to be the way it is, what decisions its designers and builders made about the place, how people actually use it, how they feel toward their surroundings, and generally how that particular environment meets the needs of its users. Researchers also begin to form an idea of what people are like who use that place—their culture, their affiliations, the way they present themselves.

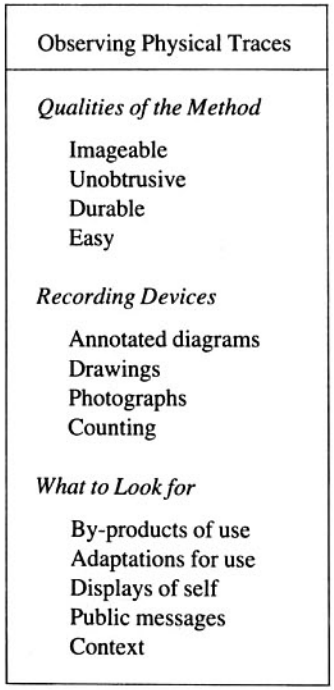
Most people see only a small number of clues in their physical surroundings; they use only a few traces to read what the environment has to tell them. Observing physical traces systematically is a refreshing method because, through fine tuning, it turns a natural skill into a useful research tool.

A simple yet striking example of the use of this method is Sommer's observation of furniture placement in a mental-hospital ward and corridor (1969). In the morning after custodians had neatened up and before visitors arrived, Sommer found chairs arranged side-by-side in rows against the walls. Each day, several hours later, he found that patients' relatives and friends had left the same chairs grouped face-to-face in smaller clusters. Among the inferences this set of physical-trace observations prompted Sommer to make was that custodians' attitudes toward neatness and their beliefs that furniture ought to be arranged for efficient cleaning and food service were incongruent with patients' behavior and needs.

To test these ideas, he rearranged the furniture in the ward, expecting patients to take advantage of the increased opportunities for sociability. For the first few weeks, he was surprised to find, patients and nurses returned chairs to their against-the-wall positions; according to them, the new way "wasn't the way things belonged." Eventually Sommer put the chairs around tables in the middle of the room, and on the tables he put flowers and magazines. When this threshold

of environmental change was reached, changes in behavior took place as well: patients began to greet each other more, to converse more, and to read more, and staff members began a crafts program on the tables in the ward. And it all began when Sommer noticed a difference between how custodians left chairs in the morning and how patients and visitors left them at the end of the day.

The following discussion presents (1) significant qualities that observing physical traces has for use in E-B research, (2) types of devices for recording observed traces, and (3) a classification of trace types to make visible those relations between people and environment that are useful for designing.



QUALITIES OF THE METHOD

Observing traces is an exceptionally useful research tool that can produce valuable insights at the beginning of a project, test hypotheses in the middle, and be a source of ideas and new concepts throughout. If you take into account what the method can and cannot do, you can achieve the results you want; like any tool, if used inappropriately it can be destructive. The method can be a source of provocative images, is unobtrusive, is easy to use, and deals with long-lasting phenomena. It provides opportunities for investigators but also sets up some traps.

Imageable

Observing physical traces provides rich impressions and is highly illustrative. Walking through a home for older veterans in Oxford, New York, investigators saw, for example, wheelchairs in odd places, old furniture, new medical equipment, direction signs, people in uniforms, open cans of food on windowsills, and patients' get-well cards taped to walls in rooms (Snyder & Ostrander, 1974). The walk gave researchers an initial picture of what life in that home was like: its design successes, some problems, exceptional situations, patterned wear and tear. At the beginning of a research project, such observations can be used to spark investigators to think about what the observed objects might mean. Skillful observers will notice even commonplace physical traces and figure out which of them will lead to fruitful inferences to pursue further. At Oxford, investigators focused their attention on cans of food on windowsills—developing from this information a central research hypothesis that residents lived a 24-hour life-style out of phase with the institution's 6:00 a.m. to 7:00 p.m. schedule.

From a trace investigators ask questions about what *caused* it, what the person who created the trace *intended,* and what *sequence* of events led up to the trace. The imageable quality of physical traces makes it easy to generate hypotheses about causes, intent, and sequence, but from the trace alone researchers cannot tell how tenable their hypotheses are; to do this, they need other methods. For example, in a brief evaluation of a somewhat run-down housing project in Roxbury, Massachusetts, Zeisel (1973b) found large, well-kept flowering shrubs in residents' backyards. At first he falsely assumed that residents beautified their small yards because they cared about the appearance of the project and wanted their own vistas more scenic. In later interviews with residents he found that shrubs had been planted years before in response to a management-sponsored competition for the best garden. A closer second look revealed that even good-looking plants in the backyards had been very much neglected.

The same potential pitfall can arise when investigators falsely infer intent. One morning a group of architects visiting a housing project for older people in a predominantly Italian section of Boston noticed a bocce-ball court surrounded by apartment windows. It looked as if it had never been used. They tentatively concluded that something was wrong with the facility, that residents did not like playing bocce ball, or that they did not like the location of the court. In fact, the court looked brand new because workmen had just completed it several days before. In addition, it was early morning, and anyone who might have used the court was still at home.

It is also difficult to infer process. In a suburban Boston prison, cell walls are papered from ceiling to floor with *Playboy, Penthouse,* and *Swank* centerfolds. At first glance it seems impressive that prisoners fix up their dwelling units so extensively—that they mark out and personalize territory so dramatically. But the impression the traces give is misleading. Most centerfolds have been glued to the cell wall by a series of previous inmates. Walls are not stripped when a new

inmate moves in, every 6 to 12 months. The wallpapered surroundings that inmates move into offer them many diversions but little chance to personalize.

Visual trace records can be used as illustrations of research concepts. This can prove useful to investigators who want to follow up on trace observations with interviews to test their hypotheses. In studies of property damage in parks (Welch, Zeisel, & Ladd, 1978) and in schools (Zeisel, 1976a), for example, investigators showed slides of damaged property to groups of teenagers, park personnel, and persons living next to the property in order to focus discussion on what these people thought about property damage.

In lectures and reports, pictures of vivid traces can help viewers and readers understand physical settings in which projects were carried out. Lenihan (1966), in his report evaluating the VISTA program in the 1960s, wanted readers to understand the wide variety of volunteers' assignments: Appalachian mountain villages, Southwestern desert towns, urban slums. He used photos of physical traces to augment the poetry of his writing.

The force of concrete visual impressions can be a pitfall for careless researchers. The visual impact of even low-frequency observations can be so great—flowering bushes, nearly new facilities, vandalized windows—that they dominate a researcher's mind. To a person walking through a well-kept housing development, the beauty of a few flowering bushes can give the impression that there are flowers in bloom everywhere, even though few residents have bushes and only some are flowering. When such traces are photographed and presented out of context, they can mislead—a problem of false emphasis the visual communications media face every day. It is important that observers also train themselves to see traces that do not stand out, such as the scarcity of certain expected objects or the absence of wear and tear. If you ask yourself "What traces are missing?" in addition to "What traces do I see?" you are more likely not to be seduced by visually impressive traces. You will begin to see what is not there.

Unobtrusive

Observing traces is an unobtrusive method (Webb et al., 1966). It does not influence the behavior that caused the trace.

Unobtrusiveness is particularly valuable when gathering data about which respondents are sensitive or when respondents have a stake in a certain answer. For example, an investigator who wants to know how strictly hospital attendants follow fire-safety rules will learn more from counting the fire exits blocked by stretchers than from interviewing attendants, who may want to paint a rosier picture than actually exists. School principals who want to avoid showing they are not doing a good job may report less damage to school property than a researcher might observe directly. And principals who want the school committee to increase the budget for maintenance may magnify the damage. If a respondent at home knows a researcher is coming, she may neaten up the house beforehand, putting away such physical traces as toys in the living room, which might indicate how different rooms are used.

Observing or measuring traces does not require being present when the traces are created. The method is therefore particularly useful to find out about rare events, hard-to-see events, private behaviors, and behavior of groups who cannot be interviewed. Zeisel's school study (1976a) provides an example of using physical traces to document private behavior that is hard to observe directly. During the day teenagers can be seen hanging out around schools, playing stickball against walls, and sometimes climbing onto rooftops. At night they sometimes find out-of-the-way places around back to sit together, drink, and smoke. Boston teenagers treat these half-hidden settings as clubhouses where outsiders are not allowed. The first hint of such nighttime clubhouse activity came from physical traces: empty beer cans, discarded playing cards, cigarette butts, graffiti, and broken lights.

Durable

Many traces have the advantage for researchers that they do not quickly disappear. Investigators can return to a research site for more observations or counting and can document traces with photographs or drawings. Of course, the more permanent a trace is, the greater its chance of being observed at all. For example, rock gardens and paving stones in someone's garden will be visible for years, long after grass and flowers have virtually disappeared.

There is, however, the problem of selective deposit. Some activities are more likely to leave traces than others. The extent of beer drinking in back of a school can be detected the next day by the number of cans. Playing poker or smoking nonfilter cigarettes may leave no traces at all.

Another consequence of the durability of traces is their cumulative quality; earlier traces can encourage later ones. A large number of people may feel free to cross a lawn because people who did so before left a path, whereas few people would do so were there no path. This cumulative quality can cause problems for investigators who overlook it, who think each act is independent of earlier ones. But if traces are not taken out of context, their cumulative character can provide insights for data gathering and analysis. The finding, for example, that litter tends to beget litter (Finnie, 1973) is particularly useful if you want to arrange maintenance schedules in parks and around schools.

Easy

Physical-trace observation is generally inexpensive and quick to yield interesting information. The inexpensiveness of a brief physical-trace survey makes it possible in most research projects not only to discover but also to explore in greater depth a host of initial hypotheses. Using more costly methods

would mean discarding possibly fruitful but implausible hypotheses without looking at them closely. This same quality means, however, that researchers can waste their energy because time and money do not force them to think through each initial proposition rigorously before going into the field.

The speed and ease with which physical traces can be recorded—in still photographs, sketches, notations—make the method useful for collecting a great many data for speedy review. An initial site visit can yield enough recorded observations for weeks of review and analysis. This is helpful in generating a range of testable propositions and hypotheses. Yet the harvest can be so rich that it seduces a research team not to look further: "We already have so much information. Why do we need more?"

In sum, observing physical traces is imageable and unobtrusive, deals with durable data, and is easy to do. The following sections of this chapter discuss ways to record trace observations and a classification of traces particularly relevant to questions of design.

RECORDING DEVICES

Investigators save energy and time by deciding before going into the field how and when they will record trace observations: annotated diagrams, drawings, photographs, precoded counting lists, or a combination of these. If photographs are chosen, researchers decide such issues as whether prints or slides will be more useful for the purposes of the study or whether both are needed. Each decision affects how trace observations can be analyzed, how they can be used in conjunction with other research methods, and how findings will be presented.

Observations ought also to be timed to avoid possible systematic effects of maintenance schedules or predictable activity cycles on the data—for instance, early morning cleanups that obliterate signs of teenagers' night life around schools.

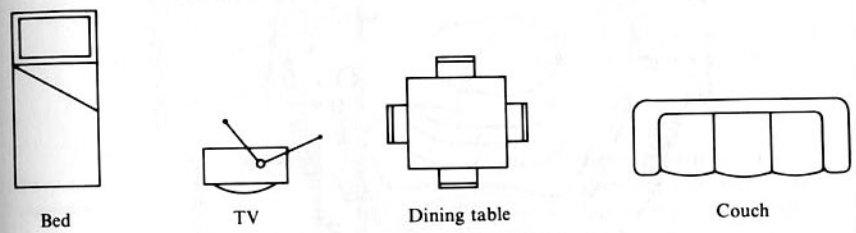
Annotated Diagrams

Recording traces verbally and diagrammatically, as a rule, requires little preparation and no special skills. Except for a notepad, the recording method is unobtrusive; to make it still less obtrusive, trained observers may memorize major traces in a setting and record them later. This is especially possible when the setting is simple and the objective standardized, as when making diagrams of furniture layouts in people's living rooms for a study of what furniture people own and how they arrange it.

During a two-person interview one interviewer can inconspicuously draw a plan of the setting and note where objects are located and where physical traces

are. In settings where cameras are out of place or lighting is difficult and the researcher does not want to use flash attachments, written trace notation is appropriate. Annotated diagrams are also well suited when traces can be recorded on two-dimensional plans and then studied. The arrangement of chairs Sommer (1969) observed in the patient dayroom could perhaps be represented in plan more effectively than in photographs.

When annotated diagrams are chosen as one of the recording devices, several rules of thumb can be helpful. Agreement among researchers on a set of standard symbols will increase comparability of the data within a project. For a residential floor plan, for example, a team might use traditional architectural symbols for furniture. When researchers on several projects use such standard and easily understood symbols, their data can be more easily compared and shared.



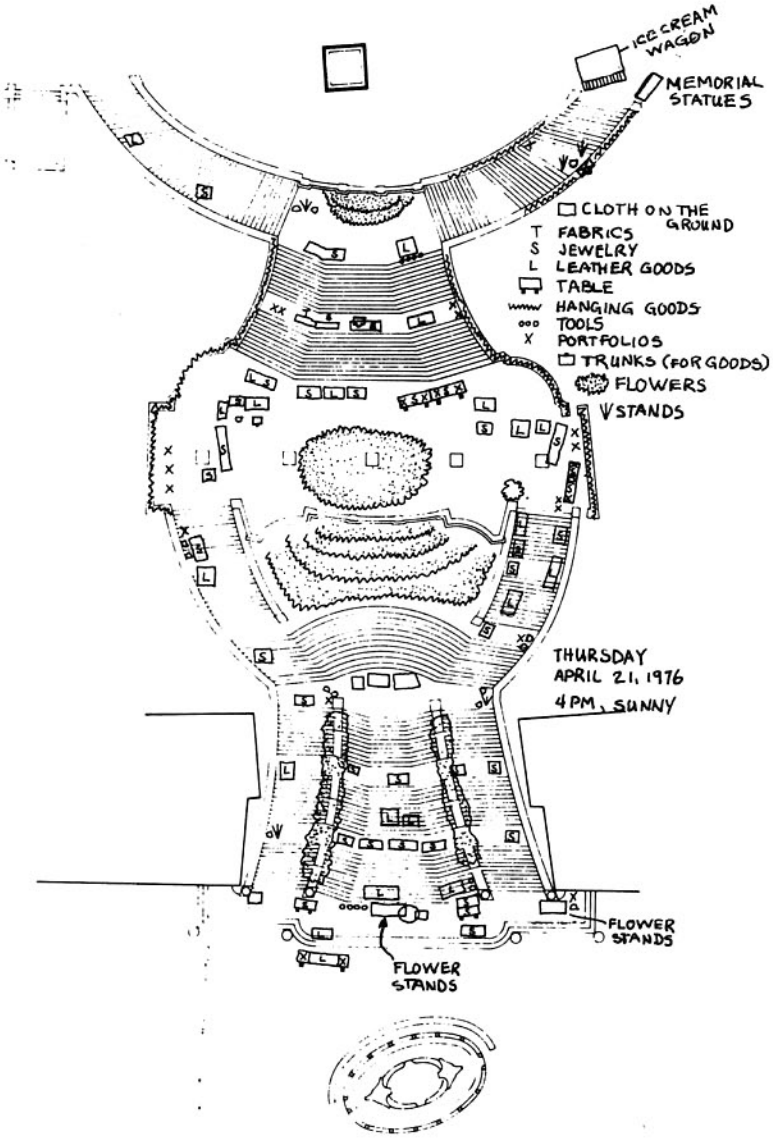
Architectural furniture symbols

Outdoors and in special settings, investigators may have to be more inventive about the symbols they use. In their study of peddlers and pedestrians on Rome's Spanish Steps, Günter, Reinink, and Günter (1978) developed a set of symbols for recording how peddlers arranged their wares (see next page).

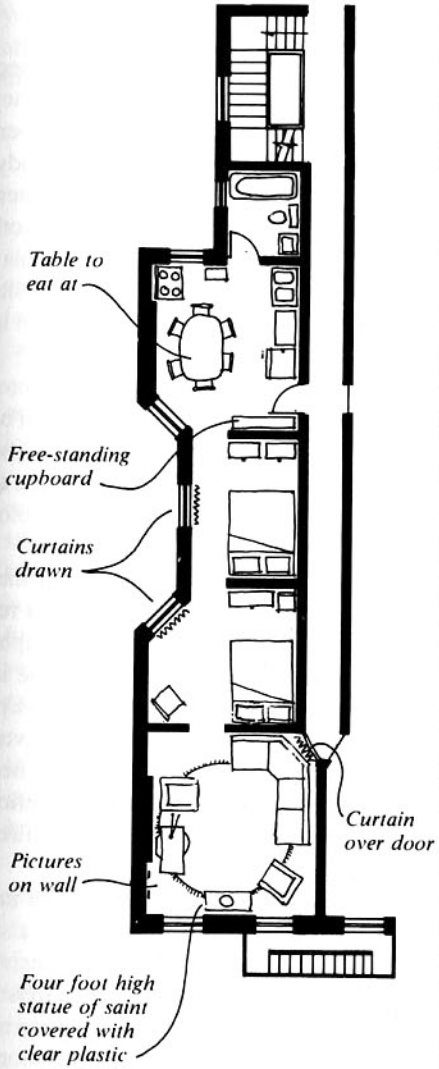
If you want your observation notes not to be confused with your reactions to what you saw, you must not analyze them in the field. Provisions need to be made to facilitate subsequent analysis.

A simple device can facilitate preliminary analysis of field notes with a minimum of fuss: Original notes and diagrams are made on the left half of the notepaper, leaving the right half open for recording hunches and preliminary hypotheses (see the illustration "Furniture Layout in El Barrio Apartment," p. 97). A wide margin can be made on any notepaper simply by creasing it.

If investigators know the floor plans of the places to be observed, and if more than one similar place is to be observed or the same place is to be looked at several times, their notepaper can have a floor plan printed on it. This facilitates making notes and ensures comparability of diagrams. This method can be used equally well for interiors, such as offices, waiting rooms, or dwelling units (Zeisel, 1973a) and for exteriors, such as playgrounds, street corners, or plazas (Günter et al., 1978).



Annotated diagram of the Spanish Steps. (From *Rome-Spanische Treppe*, by R. Günter, W. Reinink, and J. Günter. Copyright 1978 by VSA-Verlag, Hamburg. Reprinted by permission.)

OBSERVATIONS	COMMENTS
	*Does the stair location discourage residents from using the furthest door, the one into the living room?*
	Does the bathroom location next to the kitchen/eating area bother residents?
	The kitchen seems to be the main place to eat. Is it big enough?
	Is the darkness in bedrooms — caused by drawing curtains — for privacy? If so, is it privacy from neighbors looking in or from the rest of the family?
	The living room door permanently covered seems to indicate that the kitchen door is the main and only entrance to the apartment.
	Does this mean that most people sit in the kitchen most of the time?
	Pictures, saint, and expensive TV in the living room seem to say "this room is a revered, special, almost sacred room." Is it?
	Does blocked living room door covered by a curtain mean it is improper to invade the "sacred" room?

Furniture layout in El Barrio apartment: Sample field notes from Zeisel, 1973a

Drawings

If observers have the skill to make sketches of the traces they see, the time it takes may well be worthwhile. Drawings can be extremely useful in final reports because they are highly imageable and inexpensive to reproduce.

Photographs

Photographs of physical traces taken at the beginning of a research project can give all parties working on it an initial overview of the types of things they are likely to see in the field. Discussion of photographs among team members can quickly generate hypotheses about possible fruitful issues for further study. A group can leisurely discuss what behavior a trace might reflect and what intent might be behind it. For these reasons, it is generally valuable to document both easily photographed outdoor traces and indoor traces, although indoor ones may be harder to photograph. Photographs are particularly valuable if the research site is not easily accessible because it is too far away, requires special permission to visit, or is altogether temporary (for example, a circus).

When investigators expect to count traces, they can first analyze photographs of observations to decide on categories for counting. Photographs can be used as stimuli in focused interviews, to determine the categories respondents use when they see such things. At the end of a project, photographs are excellent to illustrate verbal presentations of findings. Many of these qualities hold for photographs in research, whether they are of physical traces or of behavior.

In the field several rules of thumb and a few tricks can possibly save time, money, and embarrassment. Expensive cameras are seldom more useful as research tools than inexpensive ones. Researchers need to take some photographs themselves because they know what to record for analysis—what to include in the picture and what to leave out. For illustrative photographs, one can always hire a professional photographer (or choose the most skilled researcher). Even then one will have to tell the professional precisely what to photograph. When extra equipment is needed—for instance, flash attachments or tripods for interior photographs—it must be selected with consideration of both research requirements and respondents' sensitivity.

A researcher's choice of film has perhaps the greatest consequences for the rest of the study. Black-and-white photographs, useful as illustrations, can also be made useful as objects for group discussion. Color photographs are expensive and difficult to print. From contact sheets or directly from negatives, researchers can choose a number of photographs which seem to cover the range of concerns they are aware of, which seem to be most interesting, or which require more discussion and analysis to understand. These photographs can be inexpensively printed as large blowups on a microfilm printing machine, available at most libraries. Although such prints cannot be used as permanent records because they fade after several months, they can be put on a wall for analysis and discussion.

Arrayed in this way, photographs enable all members of a research group to participate in initial visits to the site.

Color slides have other benefits. In addition to being convenient and captivating during oral presentations, slides can be easily grouped and regrouped for analysis on light tables or in projectors. Some slide films can be developed commercially in just a few hours. When it is essential to know that you have all your data before leaving a site, or when you want to make a presentation shortly after making observations, slide film that can be quickly developed or even instant-print film may be a lifesaver.

Counting

Certain traces yield their full value only when their quantity is taken into account. In such situations it will suffice to record in detail one or two examples and count the rest. For example, in a housing project where some families have fenced in their backyards and some not, photographs of a few along with a careful count will do the job.

If you know what you want to count beforehand, precoded counting pads or checklists can be arranged—possibly linked to the site plan for accurate location data.

As important as choosing appropriate categories is intersubjectivity of the categories among observers. Each member of a team of observers faced with the same physical trace ought to record it as a trace in the same category if data are to be comparable. To achieve a degree of intersubjectivity, observers in the U.S. housing census are shown photographs representing distinct levels—and therefore categories—of housing deterioration. On the basis of these "exemplars" this very large group is expected to develop a shared way of looking, at least to some extent.

Another practical way to develop intersubjectivity among investigators is to take them on a site visit to settings similar to those at the research site. Through group discussion they can learn from one another and arrive at a consensus of how items they see would be recorded.

Each way of recording traces catches another dimension of the trace and provides researchers with new data.

WHAT TO LOOK FOR

What an investigator chooses to observe depends on what he wants to do with the data he gathers. If I want to identify my mother in a crowd, I will try to notice only women whose hair is brown with a gray streak. If you want a police officer in New York City, you will look for and "see" only people in dark blue uniforms.

The following categories for looking at and gathering data about physical traces are organized to increase designers' control over the behavioral effects and side effects of their decisions and to increase people's own control over their relation to the environment. Both these purposes are means to another end: to increase everyone's ability to intervene through design to make settings better suited to what people actually do. These purposes translate into such questions as the following: How do environments create opportunities for people? Where do people and their surroundings impinge on each other? Where do they limit each other? How do people use the environment as means to an end? And to what ends? What design skills do people have? How do they manipulate their surroundings? How do people change environments to meet their needs? What takes place in particular settings? To answer such questions, the following organization for observing physical traces is useful.

Physical Traces to Look for
By-products of Use
Erosions
Leftovers
Missing traces
Adaptations for Use
Props
Separations
Connections
Displays of Self
Personalization
Identification
Group membership
Public Messages
Official
Unofficial
Illegitimate

By-products of use, the first category, reflect what people do *in* settings —such traces as litter or worn spots left behind by someone who used, misused, or failed to use a place. The other three categories represent things people do *to* settings. *Adaptations for use* reflect changes by users to make an environment better suited to something they want to do: a fence built, a wall broken down, a lawn changed into a patio. *Displays of self* are changes people make to establish

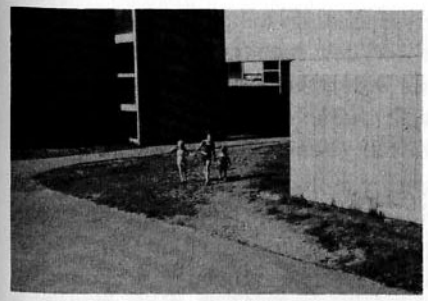
some place as their own, to make it express who they are personally: a flag or a religious symbol on front lawns; mementos of trips on windowsills. *Public messages* are changes such as wall posters and graffiti, by which people use environments to communicate with a large public audience, sometimes anonymously.

What you look for depends on what you want to do with the data. Ruesch and Kees, in their perceptive book *Nonverbal Communication* (1970), describe using data on facial expressions, body movement, and physical traces to understand how people communicate without words. Their emphasis on communication leads them to underplay traces in the categories of adaptations for use and by-products of use but provide a more detailed analytic scheme for displays of self. Another important description of how to observe physical traces is included in Webb et al., *Unobtrusive Measures* (1966). Webb et al. describe the usefulness of a range of measures—for example, counting bottles in garbage cans to see how much people drink, observing litter in the park, and analyzing suicide notes. The categories they develop are not all equally suited to solving E-B questions. For example, they use the term *accretion* to describe any type of physical trace left behind, without specifying the manner in which it was left —the actor's environmental intent. All but one of the categories discussed in the following pages and several discussed in Chapter 12, on archival methods, are examples of accretion. For clarity I have, therefore, scrupulously avoided the use of this important but broad term.

By-products of Use

Sherlock Holmes, Miss Marple, Hercule Poirot, and Lord Peter Wimsey are masters at detecting and correctly interpreting side effects of behavior—worn-away stair treads, a smudge on a door, or a glass wiped suspiciously clean of fingerprints. These examples represent three types of by-products: erosions, leftovers, and missing traces.

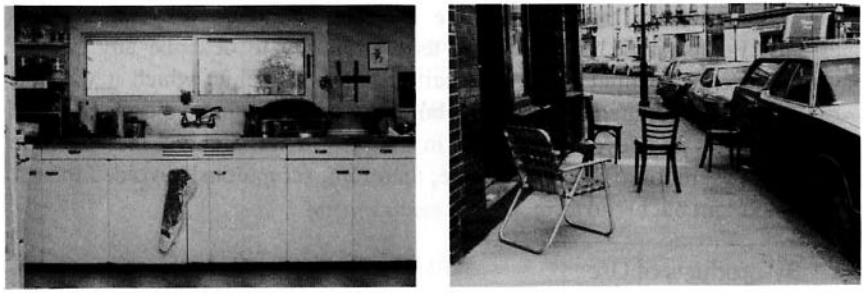
Erosions. Use can wear away parts of the environment: grass is trampled where people walk from a parking lot to a nearby building entrance; grooves are cut into the top of a butcher's block table.



Erosions

Some erosion traces, such as the scars in the butcher's table, indicate to the interested researcher that planned and predicted activities have taken place; others that the environment is being used in a new way, such as the path across the lawn. Because most environments sustain some wear and tear, observers must be careful to distinguish between erosion traces that signify bad design, those that reflect uses designers planned for, and traces left when new and appropriate activities took place. Erosion traces, and in fact all by-products of use, can be the first step in finding out what those who use the setting feel about it.

Leftovers. Physical objects as the result of some activities get left behind: cigarettes in ashtrays after a party, dishtowels hung on kitchen-cabinet knobs next to a sink, open cans of food stored on windowsills in a veterans' residence.



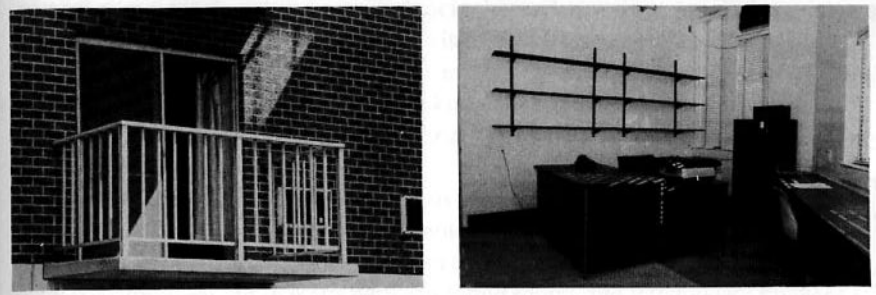
Leftovers

Like erosions, leftovers may indicate activities that have been planned for, such as parties, and unplanned for, such as residents eating soup in their rooms. Such leftovers as the dishtowel, however, tell you about planned-for activities that have unplanned-for side effects—in this case the need for towel storage.

Leftovers help to locate (1) places that accommodate planned-for activities, (2) places that only partly accommodate expected activities, and (3) places that are used in unanticipated ways.

Missing traces. Erosions and leftovers in settings tell us about what people do. When we see neither of these, or even very few such traces, it tells us about what people do *not* do. Apartment balconies with no chair to sit on, without even a stored winter tire or a clothes-drying rack, and an office with nothing on the wall or table to betray the occupant's individuality demonstrate missing traces.

Inquiring about why traces are missing can uncover seemingly irrelevant physical design decisions that limit behavior. For example, some balconies have bars spaced so wide apart that families with small children are afraid to use them. Sometimes missing traces are explained when researchers probe rules about how a place may be used: "No family photos allowed on office walls." Asking "why"



Missing traces

may lead to not very useful answers: "The apartment is vacant because tenants just moved out." But it may also lead quickly to fruitful insights, because not to use an available space is quite a strange thing to do.

Adaptations for Use

When some people find that their physical environment does not accommodate something they want to do, they change it; they become designers. Some professional designers try to predetermine as little as they can in buildings and other facilities so that residents have the greatest opportunity to join in design by adapting the setting the way they want (Habraken, 1972; Turner, 1972; Wampler, 1968). At the other extreme are designers who try to plan for everything they think will occur—from built-in furniture to the color of curtains. The former is called "loose-fit design," the latter "tight-fit." But no matter what the original designer wants or expects, people who use environments redesign them. Researchers and professional designers can learn a great deal from this adaptive redesigning.

Adaptive traces are significant for designers because they are direct manifestations of design by users. They take place in the fuzzy area between what professional designers and lay designers do. Such traces are difficult to interpret, but one does not have to estimate whether they will lead to action, as one does with attitudes.

People change settings to better support activities: to facilitate and sustain them. They may remove inappropriate props, such as built-in lights that are unadjustable, or add new ones, such as a backyard barbecue pit to make eating out easier. For the same ends, they can alter the relations among settings—creating both new connections and separations, such as windows and walls.

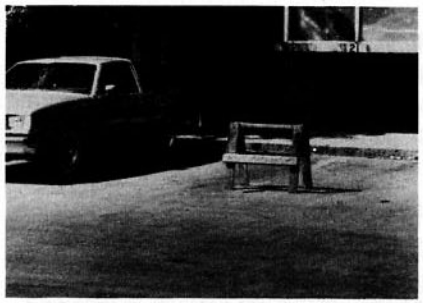
Props. When users add things to or remove things from a setting, they create new opportunities for activity. Inasmuch as the things support activities, we can think of them as staging props purposefully arranged by users: a wood-burning stove installed in someone's apartment living room; play equipment added to an empty lot to change it into a playground.

Props

New props may have been added because users or uses have changed or because certain activities were overlooked or considered unaffordable in original designs. Props added for either reason may reflect a particular user's idiosyncratic wants, such as the living-room stove, or they may reflect more normative behavior common to a larger group.

Separations. Changes may separate spaces formerly together, increasing such qualities as privacy, control, and darkness or more sharply dividing territories: ground-floor apartments with covered-over windows, stones along someone's property line, "Keep Out" signs on back doors of buildings.

Separations can be particularly informative about side effects of design decisions. The parking areas in the interior of Castle Square, a housing project in Boston's South End, were deeded officially to the city so that it would maintain them, plow them, and pick up garbage on them. But as an unanticipated side effect, people who work in the surrounding neighborhood park there during the day and sometimes all weekend. Residents feel that this infringes on their informal right to park their cars just in front of their houses, and so they place wooden sawhorses across the parking places in front of their doors to stop other people from parking there.



Separations

Separations do not necessarily block physical movement or all the senses at once. They may, for example, be only visual (an opaque cardboard wall around a work area), auditory (a blaring radio in an office so nobody can overhear a conversation), olfactory (a fan to keep kitchen smells out of the living room), or symbolic (a three-inch-high brick border around a front yard).

Connections. Physical adaptations for use may connect two places, enabling people to interact in new ways: holes that teenagers strategically cut in a playground fence to enable players to get in without walking around to a distant gate; pass-throughs cut in walls between living rooms and windowless kitchens to provide a view out when residents eat in the kitchen. Buildings converted to restaurants often have windows cut into swinging kitchen doors so that people serving can avoid bumping into each other when coming from opposite directions.

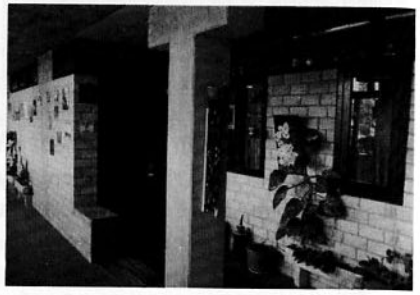
Connections that users of a facility make can indicate that the original designer overlooked a common behavior that requires being able to move, see, hear, or talk between one space and another or that such activity developed since the place was designed (as with the window in a swinging restaurant door). Of course, sometimes users may want a connection that setting managers do not. An example would be hacksawed bars on a prison-cell window after a jailbreak.

Connections

Displays of Self

Residents change environments to put their stamp on them—to say "This is mine and it says something about me." Displays of self may be directed toward other people, but just as often the changes mean something mainly to the person who makes them: mementos of trips, family portraits, doll collections. Displays may help others identify a person's environment—name plaques on the front door—or may tell people about the person by announcing what groups she is a member of.

Personalization. People use environments to express their uniqueness and individuality: a style of furniture in the living room, trinkets on the windowsill, silly signs on businesspeople's desks. Each such use shows how someone is different from his neighbor—in taste, in personality, in habits.

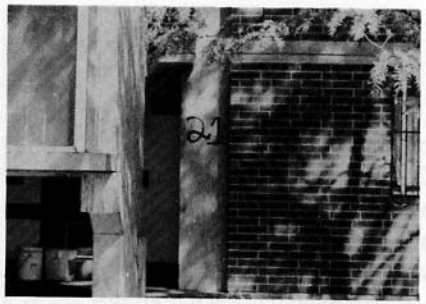


Personalization

To show off personalization traces and other displays of self, people find and make such display cases as windows, walls, doorways, car bumpers, shelves, and window ledges in almost any kind of setting, from offices to homes, from hospitals to schools. By observing how parts of the environment are useful as display cases, you can improve your ability to design environments that provide opportunities for displays of self.

Identification. People use their environments to enable others to identify them more easily: names of students on school lockers, initials on commercially bought sun awnings for homes. Such markings are people's individual street signs, even if they are just numbers: house numbers, office numbers, cell numbers.

Who leaves a trace can be significant. If a student writes his name with felt-tip pen on a school locker, the locker might mean something to him. How important is a home territory like this to him? Felt-tip ink is difficult to remove.



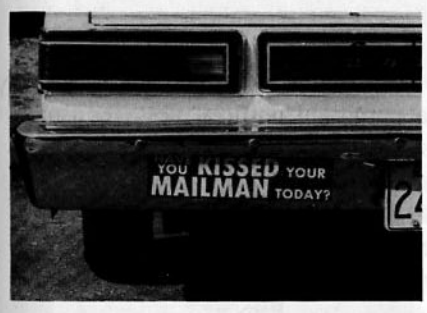
Identification

Did he do this on purpose to leave his mark for the next student? Would he use a name tag provided by the administration? If so, what would he feel about it? More important, what would this indicate about the relationship between students and administrators?

How permanent a trace is may also be significant. Does the name of a family etched into the wood of their front door mean they hold different attitudes toward the neighborhood than their neighbors whose name is spelled out with store-bought plastic letters in the lawn? The family with plastic letters may feel no less permanent, but rather have greater respect for wooden doors.

Group membership. In addition to displaying their individuality, people also display their membership in formal groups and organizations: religious, academic, fraternal, political, ethnic, cultural, professional. Religious statues on front lawns, professional diplomas on living-room walls, ethnic dolls in windows, pictures of President Kennedy, awards from one's company for reaching a sales quota all tell you about the groups an individual identifies with.

Group-membership signs are often carried around on more mobile display cases: car bumpers, high school jackets with emblems, T-shirts.



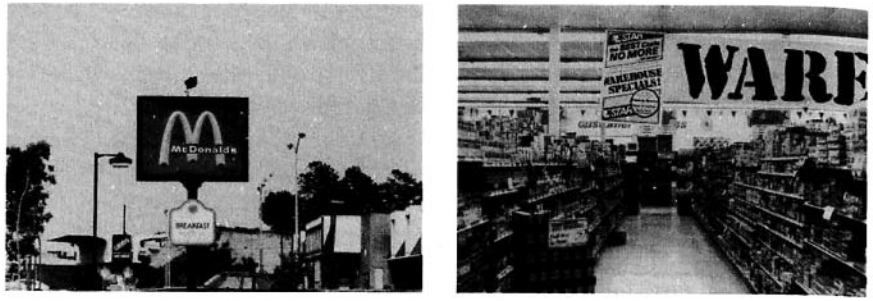
Group membership

Observers can easily overlook group-membership traces of unfamiliar groups. For example, hot-rod owners identify themselves by extra-wide wheels on their cars, with the manufacturer's name in large, raised, white letters. This practice is derived from actual race-car drivers, who are paid to advertise brand names on their cars and hence have wheels like this. Such signs of group identification can be meant mainly for other group members. To attune yourself to see traces like these with in-group meanings, you can assume that displayed objects you see have such meanings and then ask about them.

Public Messages

Physical environments can be used to communicate to the public at large. Most, but not all, public messages appear in public places.

Official. Probably the most frequently seen public messages are official ones erected by institutions, which may even pay for the right to do so: advertising signs, names of commercial establishments, place names. They reflect official uses of settings—the behavior of paying clients.



Official public messages

Official public messages usually appear in environments designed for that purpose. The private right to display official public messages is increasingly being challenged by the public, asserting its right not to see them.

Unofficial. Individuals and groups also communicate publicly by means of settings not designed specifically for that purpose. Unofficial messages usually announce short-term events and are often accepted and even expected on surfaces in public places: theater placards on wooden walls surrounding construction sites, political posters stapled to telephone poles, and "Lost Cat" announcements taped to laundromat windows.

Unofficial public messages

Informal public messages tell investigators about such things as types of cultural events taking place in an area, proportion of students living there, and political activity. Some bookstores and supermarkets establish tack boards for

such messages. But the usual traces left from unofficial public communications are shreds of paper stuck to lampposts, brick walls, and newspaper stands.

Illegitimate. Messages to the general public which are not planned for, for which environmental adaptive changes are not made, and which, although sometimes expected, are seldom if ever approved of, are considered by many to be illegitimate uses of public environments. The most frequent example of illegitimate public messages is graffiti. Political graffiti with antiauthority slogans or antiethnic slogans often appear in prominent public places. Members of teenage gangs in large American cities stake out their turf by writing their name and street number on walls.

Illegitimate public messages

Illegitimate as I am using it here does not imply a value judgment. It merely refers to official disapproval of the activity. Those who engage in the activity may find it completely legitimate. For example, almost everywhere students paint lines on walls of schools to enable themselves to play games: a hockey goal to play street hockey or a square strike zone to play stickball. They consider such lines as legitimate as the neatly painted official lines on the basketball court (Zeisel, 1976a). Others may consider the lines attacks on society.

Such "illegitimate" expression may have useful social side effects. Gang graffiti, establishing territorial boundaries, possibly reduce gang conflict. Political slogans give minority political groups visibility.

Context

Traces clarify their context and are clarified by them. A square painted on a wall may mean nothing. Near a school it is a stickball strike zone and signifies that the area is used for street games. When looking at physical traces, researchers must keep in mind that they are trying to look beyond the trace itself to understand a larger picture. That larger picture can emerge only if you see the context of what you observe.