

# BEHAVIORAL CHANGE ON WARD 8:

## PHYSICAL ELEMENTS AND SOCIAL INTERACTION

This is an account of transforming a typical ward in an old Kirkbride-modelled mental hospital. It describes the consequences of a participatory design and decision-making process in which users of the ward environment influenced the outcome of the design effort. Although there were other important dimensions to the study, this report focuses on the effects that the changes in the physical environment had on the social milieu. The project was funded by the Department of Mental Health and Mental Retardation in Ohio.

Participants in the process were 1) the ward staff; 2) the patients themselves; and 3) an interdisciplinary team of architects/builders, social scientists, and researchers called ARC (Architecture-Research-Construction). The ARC team, with the help of ward staff and patients, researched, designed, built, tested, evaluated, and documented physical changes made on the ward. At the end of that process, one observable category of ward activity—interaction—was more than doubled among a group of 22 long-institutionalized patients over a 16-month period, as observed and measured by "behavioral mapping," a technique for studying influences of immediate environments on behavior.

The decision to close Cleveland State Hospital, where this process of studied change took place, severely affected the project plans after the work was well under way in four widely-varied wards. But since that time ARC has produced a *Handbook/Changing Places and Settings*, for the Department of Mental Health and Mental Retardation in Ohio that draws heavily on that experience. The book provides guidance and encouragement for users of physical places, helping users to make their environments more responsive to their own needs and "management." Production of the handbook was supported mainly by the Office of Program Evaluation and Research in the Division of Mental Health, Dee Roth, Chief.

### *Initial Connections With the Ward*

Ward 8 was a locked custodial ward, housing at the start of this study 49 men, many of whom had been diagnosed initially as "schizophrenic" and described in subsequent assessments as "chronic" or "severely regressed." With the help of staff, patients on the ward formed a committee to talk about changing their place. This group of "violent" males from jail-like Ward 8 wrote a touching letter asking ARC to work on their ward. This genuine request from the residents was a critical first step in the process.

We began our work by becoming acquainted with the place and the people there. We wanted to work *with* people, as advocates, agents, collaborators, not *for* them as role-bound purveyors of a technical service. The people who live and work in a place are the best source of information about that place. We learned peoples' names; we had a coffee get-together; we sat on the ward, talked with the staff, talked with the men, and listened to what people had to say.

You can change nothing reasonably without first knowing what there is to change. We wanted information that was more objective and organized than our own casual observations. Careful, methodical observation was necessary. One of the purposes of a preliminary evaluation was to determine how people used the place. With this information, gained from subjective observations as well as qualitative measurement, we could help identify problems and conflicts between the people and the place they were stuck with.

### *The Start of Mapping, August 1972*

We based our work on modified behavioral mapping procedures first developed by Ittelson, Rivlin, and Proshansky.<sup>1</sup> In brief, this technique uses architectural floor plans for the recording of

systematically observed and coded behaviors of selected groups of individuals within specific areas. The observed behavior is analyzed according to relevant categories.

While this was done primarily to give us a baseline measure of behavior for later use in determining how effective our physical changes might be, its initial product was this information:

People just did not seem to have much to do, or to do with each other; very little interaction among people was recorded during the first two-week period.

Since we had observed that virtually no activities were available to the men, we surmised that they probably did not have much to talk about. Most people spent their time walking and pacing, or sleeping, or staring—or doing nothing, which we labeled "no apparent activity;" these "pass-times" totaled 65% of the mapped "activity."

There was not any choice. We found that many areas of the ward were kept locked up: the dormitories, offices, "treatment" rooms. So these areas that might have provided some variety were rarely used.

### *Results of the Interim Mapping*

As part of the overall strategy we decided to do a second, two-week behavioral mapping in June 1973. We hoped to find out whether or not the mapping, planning, and building activities (in which the ward staff and residents had participated with ARC people) had affected patient interaction levels. By this time physical changes made on Ward 8 included these: the building of several raised platforms in the main dayhall; the installation of acoustical baffles along the ceiling; the breaking through of additional doorways between major rooms to give options for circulation; the beginning of an activity area including a pool table, pinball machines and

*The corridor-like "dayroom" transforms into a*



some exercising equipment; and three experimental two-man bedrooms. We had been around Ward 8 for about ten months, working, talking, getting to know people, making friends and enemies. We had not fully completed any of the supportive settings other than the three two-man bedrooms, however.

In this second mapping session we found no statistically significant differences in amounts and kinds of interaction among a group of 22 long-term patients who were individually mapped in both mapping sessions. (These men comprised the number of patients from the original population who were still on the ward at the time of the third and final mapping, in December 1973.)

### *Patterns in Context: The Ward as a Neighborhood*

We began to think of the ward as analogous to a neighborhood. The ward should have a range of places—specific places, public to private, large to small, open to closed, active to quiet; a variety of places, in the same way, conceptually, that a city, town or neighborhood has: arenas, stores, streets, porches, houses, bedrooms. We wanted to avoid making closed rooms; we wanted to keep things open and accessible, to be visible and stimulating. We would intentionally set up places and activities for small groups (8 to 12 people), a size that is not overwhelming.

When we first came to Ward 8 it was large, disorienting, unending in its sameness. There was nothing to do. This condition, plus medication, meant that the men probably would sleep a lot during the day; but the dormitory was locked and the only place to sleep was on the floor—another "inappropriate" behavior. When we opened up the ward by removing locked doors and making new doors by breaking through non-structural walls, some staff and administrators expressed concern because the men could not be as closely supervised and there would be more fighting. Another concern was that if the men were more spread out, they could avoid contact and there would be even less interaction. In fact, fighting decreased and there was no significant change in interaction shown in the second mapping. There was now the option to avoid someone rather than confront him, with the resultant stress or violence. Choices could be made about when and with whom to interact. Being forced together and confined in one room does not lead to more interaction, but to psychological withdrawal, in

order to achieve the privacy that is physically unattainable.

We began to make supportive settings using the pattern approach within the framework of the ward as a neighborhood place, where normal events are supported by an association of normal settings. We defined the word **SETTING** as: implying relationship and support of some specific or definable activities or interactions taking place. A *physical setting* is generally synonymous with physical environment. Elements of a setting are designed to serve discrete but often complex functions—psychological, social or physical. Scale of a setting varies from furniture to rooms or even larger places.

We began to think of the specific problem of interaction. The likelihood of ever getting out of such an institution depends a great deal on the patient's ability to interact and communicate with others. Mutual support from other patients may be a major source of help.

"Although patients on chronic wards may reside there for months and even years, it is surprising how few friendships actually form. Osmond and Izumi attributed this to what they call 'socio-fugal' architecture. By this they mean architecture that discourages social interaction."<sup>2</sup>

Several patterns which support attempts at interaction will be described as examples of supportive settings on Ward 8:

*Seating for interchange:* seating to support people's efforts at lively, open, casual conversation.

*Problem:* the development of interpersonal skills depends partly on having supportive settings. Seating in institutions is usually arranged in a way that destroys easy and frequent conversation, with long benches, couches or chairs lined up against a wall, making people passive and unapproachable. Partly this is done because these arrangements make the place look orderly and because it is easier to clean. But also it is done because people feel more secure with their backs against something solid. If you place chairs in a circle, they soon get shoved back against the wall, "the way they are supposed to be." But people sitting in straight rows just do not seem to talk to each other much; it is just physically uncomfortable.

*Another Problem:* a setting conducive to lively and casual conversation requires easy entry and exit. People should not feel trapped but should

feel free about just wandering by and hanging around, butting in or deciding not to get involved. Neither is it conducive to free interchange when a standing person tries to engage a seated person; the standing person is in a dominant position and the situation is awkward.

*Pattern:* Curved, continuous seating is arranged in short circular segments. It is raised on a ten-inch platform and has a supportive barrier at the back of the seat. Two to four of the segments are arranged in a circular configuration, with spaces between for entry, to accommodate up to twelve persons. We used a radius of four feet for the back of the seat; this places people a bit more than six feet apart, facing each other. The seating is raised on a platform to bring the eye level of the seated person close to that of a standing, approaching person.

The seating was used in conjunction with activities, around a television set, by a pool table, next to a washer and dryer, or near a small kitchen. These were settings for lively, day-to-day conversational encounters, with the nearby activity as a stimulus.

*Tables* were often used with the seating. People often feel uncomfortable and squirm around in their seats if their neighbor is too close. They feel too exposed. A table can be a useful prop, something to lean on, to put ashtrays on, but also a barrier, a support over which people can engage more freely. It lets people get closer together. The other barrier we used was at the back of the seat, to keep approaching people slightly back from the seated person. But the approaching person can lean on this barrier to listen, to become peripherally involved *before* he has to make a full commitment. It also leaves him the option of retreat. This barrier at the back of the seat is a *leaning wall*.

We developed a family of patterns called *low wall*, *leaning wall*, and *counter*. They function most importantly as *symbols*, symbolic barriers; they are boundaries to define territory and to ease interaction. The barriers are used as props and supports for initial, tentative commitments to interaction; an individual does not feel so exposed standing by or leaning on these barriers since they provide protection and easy retreat.

This family of patterns served two main purposes: to facilitate interaction and to define places for activities to occur. There were two kinds of activities provided on Ward 8: those that were "pass-times," something to do, and

*neighborhood mall, on which new amenities—*



ARC (Architecture-Research-Construction) is a team of architects/builders, social scientists, and researchers based in Cleveland, Ohio. Members of ARC include: Michael Bakor, Richard Bozic, David Chapin, Charles Craig, Kenneth Esposito, Barbara Hartford (former), Steven Kahn, Walter Kleeman, Lynda Levin, and Robert Reeves. ARC is currently doing similar work in mental retardation institutions, in settings for community mental health, and in learning environments.

those activities that were related to social skills, useful and necessary for life outside the institution. The second category involved such basics as cooking, doing laundry, and maintaining one's own place. There were small kitchens for making coffee and snacks. These *unit kitchens* contained a compact refrigerator, burners and sink, and were placed inside lockable storage cabinets. These cabinets were glazed on two sides and had their own lighting to make their contents visible even when not in use. Compact washers and dryers were placed in similar units for a *laundry area*. A patient coming into the hospital with his own clothes often found them sent to the central laundry where they were easily lost (one more loss of identity—another dependence on the institution). Kitchen and laundry areas were defined by low walls and counters and contained tables and chairs or seating units. Even if not actually using the facility, one could hang around and watch someone else.

Perhaps most important, though seemingly least related to promoting interaction, was the pattern called *personal area*. This element was developed to provide each man with a territory of his own and a place to keep his possessions. Then, each person had a place to go to, to be alone or to be with a friend if he chose. Part of the definition of privacy is having control over when and with whom you interact; when this choice is not available, the only option is to turn inward, to withdraw psychologically. By giving each person a place of his own to retreat physically to, it became more likely that he would opt to interact at other times and places on the ward.

Interaction, or interpersonal skills-satisfaction, is the second level in our hierarchy of needs. First we would have to provide settings which support attempts at satisfying lower level needs before applying *interaction patterns* to Ward 8. We

began by dealing with the overall concept of the ward as one of neighborhood organization in which a range of types of spaces with focused clusters of activities allowed for options and choices. We installed acoustical baffles (*sound beams*) to reduce stress from the sensory overload of constant noise, a change which would also facilitate communication and improve orientation and scale in an inhumanly scaled place. *Personal areas* provided for privacy and territory. The use of *low walls* and *leaning walls*, along with *platforms* and *levels*, differentiated the spaces, provided boundaries and defined territories according to the new activities and functions.

After physical elements have evolved from their guiding patterns and had been designed and built, they were moved in, installed, and put to use. The bulk of this work was done by the ARC staff, with some help as well as feedback and criticism from patient-residents. Some of these men were employed at times in the workshop which had been created in an empty ward; other bargained with us from time to time "on the site" about payment for helping us there. Settings that supported interaction and interpersonal skills were completed. They were augmented by additional pattern-guided changes in lighting, color, and graphics, and by other details designed to encourage efforts at being somebody, feeling more confident and finding self-esteem.

### The Results of Behavioral Mapping

Part of the reason for doing the interim mapping in June 1973, was the uncertainty about being able to complete the projected changes on the ward, since project time was running out. We therefore mapped the interim conditions reported above. Nothing was done by ARC from August to October; we assume the ward routines went on as usual. Then, from October through December, we were able to complete the unfinished work on Ward 8.

The final mapping and evaluation was conducted in December 1973, when the installation of new physical elements and settings was basically complete. The ward population at this time had dropped to 33, from the original 49 patient-residents of August 1972. This drop was due primarily to the closing of this hospital and the necessary relocating of patients.

Of the 33 present residents on Ward 8, 11 were new since August, 1972, the time of the first

mapping. The other 22 had remained all along. Among this group of 22 "most institutionalized" individuals, whose average length of stay in institutions was 19.6 years, the occurrence of interaction had more than doubled. (This difference was statistically significant at the .0005 level with a directional test,  $\chi^2=27.80$ ,  $df=1$ .)

For the final mapping, the category "watching" was added to the activities reported, as distinguished from "staring." Watching is active; staring is passive. There was action to watch at the end, but not at the beginning of our observations.

In August 1972, no beds were available to sleep in (outside of dictated dormitory hours), while in December 1973, dormitories and bedrooms were open to the patients. Therefore, although the occurrence of sleeping didn't change much between the two mappings, the "appropriateness" of that behavior did: the patients were no longer sleeping on the floor, chairs or tables. Instead, they were sleeping on their beds.

Perhaps the most important results of the changes shown in activities are these: 1) Inactive behavior ("non-generative" behavior, which included "no apparent activity," "pacing," "staring," etc) decreased from 55.2% in the first mapping to 32.1% in the final one. (The table for *generative vs. nongenerative activities* observed is not included here.) The interior elements and settings "legitimized" some existing activities, such as the sleeping behaviors, and provided support for other activities which had not existed earlier on the ward.

A full report on the behavioral mapping and findings is available from the authors: ARC, 4455 Turney Rd, Cleveland, Ohio 44105.

### Causes of the Change

We do not believe these results are conclusive. But we do believe they may be significant, if used as indicators of what might be done as this area of investigation receives the increased attention it deserves. Much further research is needed to establish and define more precisely the roles of physical elements in enhancing and increasing options for human behavior.

We believe that significance may lie in the following factors:

The subjects in this study were labelled by medical diagnosis as "severely regressed, chronic

—including a TV alcove—now cluster.



schizophrenics" whose average length of stay in institutions was 19.6 years. All perils of such labelling aside, there is some support for diagnosis as a special group in the fact that the 22 individuals were the remainder of a larger group; among those who did not remain—including the more disruptive and aggressive individuals—some were released and some were transferred to less "chronic" wards and to other hospitals.

The mappings did follow individuals throughout the entire process of physical change to the ward.

Between mappings 1 and 2 (in August 1972 and June 1973) there was a great deal of planning and research activity on Ward 8. During this period there was much interaction among ARC people, staff, and patients. This activity might have been thought to have produced more patient interaction, but it did not: the results of the mapping in June 1973 did not show any statistically significant difference in amounts and kinds of interaction from the results of the August 1972 mapping.

The physical changes on Ward 8 seemed to be a major factor to which the ultimate increase in patient interaction might be attributed. Within a non-clinical or non-laboratory setting such as Ward 8, it is probably impossible to delineate the exact process of behavioral change in a group or to single out the effect of any one pattern or element or even of any group of these on

observed behaviors. We are aware that whatever changes in attitudes and activities on the ward might be singled out as attributable to "Hawthorne dogma,"<sup>3</sup> there were some which were chain effects, following upon the physical changes brought about: staff attitudes and actions were different. Since it was no longer possible to shout an echoing roll-call demand down the bare dayhall, a patient had to be asked in a peer-transaction if he knew where a particular fellow-resident was. Visitors—the curious, pool players among the staff, and others—were much more frequent in the new ward "neighborhood." There was an inevitable move toward normality.

The pattern concept seems to help in changing the balance of environment-user relationships so that the conventional forms of fixed, static things and places dictate behaviors less strongly. Where settings that people rely upon to support personal and social needs are created by applying patterns to defined problems, on the other hand, the resulting places seem to remain more flexible and manipulatable, more interactive, themselves, for their users. With a hierarchy of need-satisfactions as a guiding framework, the elements produced and used in this study caused cumulative and synergetic effects as the patient-residents felt themselves more secure, entered into more interactions as they perceived the existence of more behavioral options, and found more normal activities enhancing their self-esteem.

#### Additional References

*In our talk among ourselves, we began to center around the concept of a hierarchy of needs. See: Abraham H. Maslow, "A Theory of Human Motivation," Psychological Review, 50 (1943), pp. 370-396. We settled on our own hierarchy of three need levels as a guiding concept: security-safety; interaction or interpersonal skills; esteem needs.*

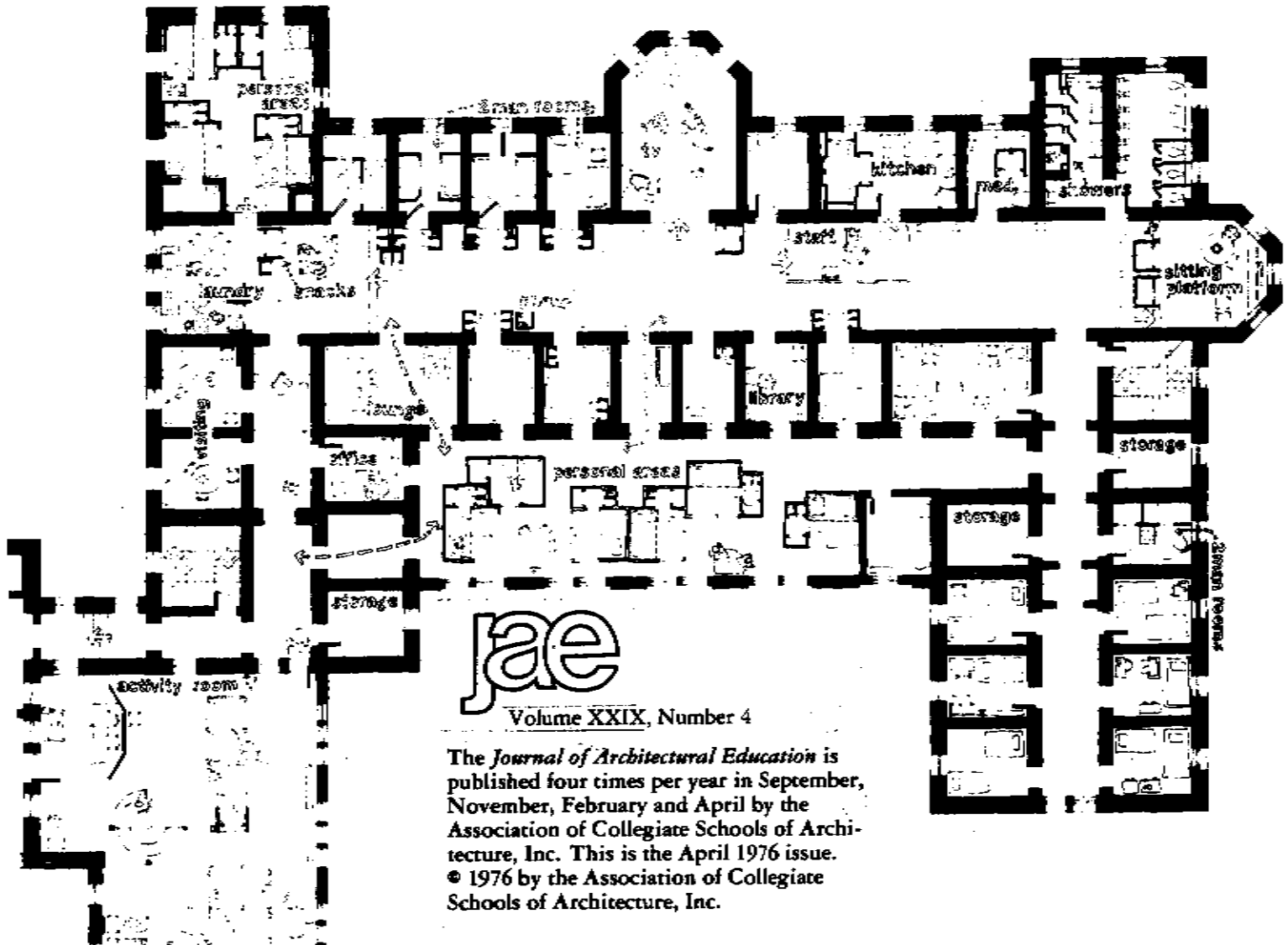
*We centered around a concept known as Pattern Language. A pattern is defined as "a typical arrangement in space of physical objects (or parts) which allows behavioral tendencies or forces to coexist in a context without conflict." See: Francis Duffy and John Torrey, "A Progress Report on the Pattern Language," in Emerging Methods in Environmental Design and Planning, ed by Gary T. Moore (Cambridge: MIT Press, 1970). Seminal work on the use of pattern language has been done by Christopher Alexander. Several books by Alexander are due to be published this year.*

*The lack of open and available places for pursuing a range of behaviors has been called "setting deprivation." See: Mayer Spivack, "Archetypal Place," Architectural Forum, Oct. 1973, pp. 44-49.*

*William H. Ittelton, Leanne G. Rubin, and Harold M. Proshansky, "The Use of Behavioral Maps in the Psychiatric Hospital," in Environmental Psychology: Man and His Physical Setting, ed by the same authors (New York: Holt, Rinehart and Winston, 1970), pp. 658-668.*

*Robert Sommer and G. W. Gilliland, "Design for Friendship," American Institute of Architects Journal, Dec. 1962, pp. 84-86.*

*Robert Sommer, "Hawthorne Dogma," Psychological Bulletin, 70 No. 6 (1968), pp. 592-595.*



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