A pivotal assumption of work on defensible space theory and territorial signs is that people interpret the presence of defensible space features and territorial signs to mean that occupants have stronger territorial attitudes and behaviors. One purpose of this study was to test this assumption. A second purpose of the study was to examine the impact of perceived local threat on the efficacy of territorial displays. A sample of forty residents, split between those who perceived that they lived in high and low problem neighborhoods, were shown drawings of residential backyards. Results supported the following hypotheses: (1) that the presence of real barriers and plantings are interpreted as a deterrent to intrusion and an indication of stronger occupant territorial attitudes, and (2) that as local perceived threat increases, territorial displays are viewed as less effective deterrents to intrusion. The study also contributes to the fine-grain assessment of the links between physical elements in the environment and expected territorial functioning by showing that the effectiveness of territorial features depends not only on their inherent physical qualities and general symbolic meanings, but also on the social context in which they are perceived to exist.

RESIDENTS’ PERCEPTIONS OF TERRITORIAL FEATURES AND PERCEIVED LOCAL THREAT

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We assume that physical elements in the environment act as cues to territorial behaviors; that is, that a person's understanding about who belongs in a space and who does not is based, in part, on an assessment of the physical elements associated with the space. This assumption derives from theories about defensible space features and territorial signs.

The term "defensible space feature" was used by Oscar Newman (1973, 1979) to refer to physical elements that delineate and define private or semi-private spaces and that make it possible for insiders (owners or occupants of a space) to effectively protect against unwanted intrusion by outsiders. Newman identifies two types of defensible space features: those that physically obstruct entry—for example, walls, fences, locks, and bars (real barriers)—and those like curbs, low fences, and planting beds, that simply define a boundary (symbolic barriers). Outsiders are discouraged from crossing a symbolic barrier unless they have a clear and socially accepted purpose, because they expect social censure or insider retribution.

In a somewhat more cognitive vein, other writers (Rapport, 1977; Appleyard, 1979) have suggested that physical elements make a space more identifiable, more distinctive, and more closely associated with a particular occupant. These physical elements act as territorial signs, or markers, conveying messages. In the presence of these signs, occupants (or message producers) tend to behave in a proprietary fashion and non-occupants (or message consumers) as guests.

The present study represents an extension of this earlier work on defensible space and territorial signs in two impor-
tant directions. First, there has been almost no work on how residents themselves "decode" defensible space features or territorial signs, and yet work in the area is predicated on the expectation that people do infer stronger territorial attitudes (for example, caring more) and behavior (for example, quicker response to intrusions) when these signs are present. If these inferences are general, residents from a range of residential environments should draw similar inferences. Thus, our first hypothesis was that residents from a range of neighborhoods would agree that territorial signs indicate the presence of residents with stronger territorial attitudes.

Our second hypothesis was that in addition to (not instead of) the "main effects" expected for the presence of territorial signs, certain "interaction effects" would surface. Residents living in high problem areas were expected to perceive that more vivid or more redundant territorial signs were needed in order to maintain effectiveness. Brower (1980) has suggested that in high threat areas, where non-occupants pose a serious and chronic threat of incursion, minimal territorial displays will be (and be seen as) ineffective deterrents. Thus, in a high threat context, people will perceive a need for heightened territorial displays.

METHOD

SAMPLING AND RESPONDENTS

The forty respondents who participated in this study were a scientifically selected subsample from a larger, multistage, stratified sample (see Taylor, Gottfredson, Brower, Drain, et al., 1980; or Taylor, Gottfredson, and Brower, 1981, for details). The larger sample spanned twelve neighborhoods of three types (low income, predominantly rental; mixed income and rental/owner split; and medium income, predominantly homeowner). In the twelve neighborhoods,
respondents were equally divided among blocks (two sides of the street) that were perceived by local informants as ones where residents watched out for one another (socially cohesive), and as ones where residents went their own way (not socially adhesive). Respondents on each block were selected using a probability-proportional-to-size strategy. Surveys were completed at 447 households on 32 blocks.

Our subsample of subjects for the present study was selected in the following way. In the interview, all 447 respondents had been asked to rate the severity of eleven types of problems (for example, fear of crime, neighbors not getting along, bad elements moving in, people who are unpredictable) in their neighborhood. Combining all these items resulted in a “Problems” scale with a coefficient alpha of .84. Respondents were then split into a “low” and “high” problems group based on their scores on this scale. A random sample of potential respondents in each of the two groups was then contacted and asked to participate in a second interview. Completed interviews were then obtained from 21 “high” and 19 “low” problem respondents.

The bulk of “high” problem respondents (14 out of 21, or 67%) lived in low-income, predominantly rental neighborhoods. “Low” problem respondents came mostly from middle-income, predominantly homeowner neighborhoods (9 out of 19, or 47%) or from mixed neighborhoods (7 out of 19, or 37%).

It is worth emphasizing that even though the subsample of respondents used in this study was small, the selection procedures used were such that subsample bias was probably very low. That is, the forty respondents represent a good sample of “high” and “low” problem respondents in neighborhoods in Baltimore City. Thus, one should not infer from the small number of subjects used that our study was a “pilot” or “limited” study in the usual sense.
THE INTERVIEW

*Stimuli.* We developed a set of sixteen line drawings on 6” × 8” cards. The basic scene showed the back yard of a rowhouse (the typical type of housing in the study blocks). The house was at the end of the row, flanked by the sidewalk on one side and an adjoining unit on the other side. The yard was bounded by the house, the sidewalk, the adjoining yard, and an alley along the back. A tree marked the corner of the yard where the sidewalk and alley joined. There were two entrances to the yard, one from the sidewalk side and the other from the alley side. In the drawings, the yard itself was characterized by the presence or absence of four basic elements: a low curb (symbolic barrier), a fence (real barrier), lawn and planting, and ornaments—an awning, a witch ball, and a pottery cat. The lawn and planting, and the ornaments represented territorial signs, with the sixteen drawings incorporating all possible combinations of these four elements.

We wanted to test whether and to what extent the potency of these elements as signs depended on the actual presence of a person, and so we developed a second set of sixteen drawings identical to the first set, except that a person identified as a resident, seated in the yard, was included in every drawing. (The pilot test had shown that when we combined both sets, the presence or absence of the person captured so much of the respondents’ attention that they ignored the other elements in the picture.) One of the sets of sixteen drawings (the set with the person present) is shown in Figure 1.

The line drawing is a common way of representing a real-world environment. The fact that it is so seldom used as a stimulus in studies of this kind is due, no doubt, to two disadvantages associated with the methodology: the external validity of subjects’ responses is questionable, and it is
hard to be sure that a drawing is an adequate representation of a real environment (Appleyard, 1977). These disadvantages must be balanced against the advantages. Line drawings have been compared favorably against other techniques (Heald, 1978), they allow for easy addition and subtraction of particular elements, and they can be sufficiently abstract for subjects to be able to "place" a scene mentally in a variety of real-world locales. We believe that the technique is a straightforward and economical way to test some important early ideas and to explore hypotheses that can later be subjected to more complex assessment.

Protocol. Respondents were randomly assigned to receive either the set of pictures with the person present or with the person absent. Each respondent was invited to
examine the set of sixteen drawings, and the various physical elements were pointed out and explained. Respondents were also instructed in the use of a seven-point rating scale. The drawings were then presented one at a time, and respondents were asked to rate each picture on each of five questions.

The questions were divided into two sets. For one set of questions, the respondent was asked to imagine that the pictures represented a house in a neighborhood similar to his or her own: (Q1) "How much does the yard look like private property?" and (Q2) "Is it an unsafe block?" For the other set of questions, the respondent was asked to imagine that the picture represented a house on his or her street: (Q3) "How likely is it that a person will cut across the back yard to get from the sidewalk to the alley?"; (Q4) "How likely is it that a person living there will put a stop to somebody cutting across?" and (Q5) "If a bicycle were left out in the middle of the back yard, how likely is it that it would be stolen?" The order of presentation of each set of questions and the order of the questions within each set were randomized for each respondent.

In addition to providing a rating for each question, respondents were also asked to indicate the features that most influenced their decisions and the reasons that they had considered these features to be important.

RESULTS

Our experimental design was a 2 (no ornaments/ornaments) × 2 (no planting/planting) × 2 (no fence/fence) × 2 (no curb/curb) × 2 (no person present/person present) × 2 (low-problem respondent/high-problem respondent) format, with repeated measures on the first four factors. The data from this mixed design were analyzed using analysis of variance by regression (Cohen and Cohen, 1975, Chapter 10) for each question.
QUESTION 1

The main effects for Planting (p < .01) and the effects for Fence (p < .001) indicated that these two elements made the back yard look more like private property. A marginally significant (p < .10) main effect for Curb indicated that a curb added slightly to the appearance of private property.

In addition, a significant Problem × Person interaction (p < .001) emerged (see Figure 2). High-problem respondents saw the presence of a person as making the space look less like private property, while low-problem respondents saw the space as equally private whether or not a person was present. Thus, the presence of a person is interpreted differently depending on the level of perceived local threat.

QUESTION 2

Main effects for the Fence (p < .001) and Planning (p < .01) factors indicated that these elements made the block appear safer.
Again, a significant Person × Problem interaction emerged (p < .001). Low-problem subjects saw the presence of a person as making the block safer, while high-problem subjects saw the person as making the block less safe (see Figure 3). As with Question 1, the presence of the person in the yard was interpreted differently by high- and low-problem respondents.

Results also produced a significant Person × Fence interaction (p < .001). Analysis of the separate means for high- and low-problem respondents indicates that the interaction applied solely to the latter group. For low-problem respondents, a block without fences is seen as considerably safer if someone is sitting in the yard. When there are fences, however, the addition of a person adds nothing to block safety. The fence, it seems, functions as a proxy for someone sitting out. High-problem respondents see things differently: For them, a person sitting out makes the block somewhat less safe, both when a fence is present and when it is absent (Figure 4).
QUESTION 3

The results indicate that an intruder is less likely to cut across the back yard if a person is present \((p < .01)\), if there is a fence \((p < .001)\), and if there is planting in the yard \((p < .05)\). These main effects were qualified by a Person \(	imes\) Fence \((p < .001)\) interaction. Inspection of the separate means for high- and low-problem respondents suggests the following: For low-problem respondents, the deterrent value of the presence of a persons is diminished if there is a fence. For high-problem respondents, the deterrent value of a person is not conditional on the presence or absence of a fence. Thus, again, as in Question 2, in the eyes of low-problem (but not high-problem) respondents, fences can serve as proxies for people.

Finally, a marginally significant main effect for Problems \((p < .10)\) was observed, with high-problem respondents indicating that intrusions were more likely.
QUESTION 4

Respondents suggested that intruders were more likely to be stopped if planting (p < .001) or a fence (p < .001) were present. In addition to these two main effects, two two-way interaction effects occurred. A Problem × Fence interaction (p < .05) suggested that low-problem respondents, more than high-problem ones, thought that a person would respond to intruders if no fence were present. A Person × Planting interaction (p < .05) suggested that with the presence of planting, the deterrent power of a person would be reduced (see Figure 5). To some extent, then, plants are proxies for people, making the presence of a watchman somewhat superfluous. Thus, when it comes to intervention, having a planted yard with no one in it is about as effective as having a person sitting out in a bare yard.

QUESTION 5

A bicycle was judged less likely to be stolen if there were a resident sitting out (p < .001) or if there was a fence (p < .001). A marginally significant main effect for Planting (p < .10) indicated that if planting were present, a bicycle would be somewhat less likely to be stolen.
In addition to these main effects, the following interaction effects were observed: A Problem × Fence (p < .001) interaction indicated that the fence was seen as a more effective deterrent by low-problem subjects, suggesting that in high-problem areas a fence is less effective in keeping people out. A Person × Fence interaction (p < .001) suggested that the deterrent power of a fence may be diminished if a resident is already present. Inspection of the separate means for high- and low-problem subjects indicates, however, that this interaction applied only for low-problem subjects, while an additive model was applicable for high-problem subjects (see Figure 6). Thus, both of these interactions suggest that the expected ability of physical and social site-level features to deter serious intruders is contingent on the level of problems experienced by the perceiver.

DISCUSSION

After ranking each of the drawings, respondents were asked to name the features that had influenced their decision and to say why they considered these features to be important. In this discussion of the findings, we draw on this descriptive material. We readily concede that some of the explanations are no more than hypotheses at this stage, but they raise issues that must be addressed in any theory of human territoriality, and they suggest answers that are supported by separate findings in this study. The results point to some significant differences in decoding features between respondents who perceive a high as opposed to a low level of local problems.6

Physical elements by themselves were found to be less effective both as territorial signs and as defensible space features in a context of high perceived threat. In some situations, a particular physical feature was judged to be a powerful influence on outsider behavior, but in other situations the same feature was seen as relatively ineffective. Territorial signs became less powerful when the outsider's
will to trespass was more serious (bicycle theft versus casual trespassing) and when respondents felt that there was an established pattern of ignoring territorial claims. Territorial signs in orderly environments could serve as proxies for the residents, but in less orderly locations these signs had to be backed up by the residents' physical presence. The presence of planting, for example, had a significant effect on preventing people from taking a shortcut across the yard, but a shortcut is a convenience and not really a matter of urgency. When there was a tempting reward associated with trespassing, like the chance of acquiring a ten-speed bicycle, planting was far less effective as a deterrent.

A fence was the most powerful of all the physical features tested. Where residents perceived a low level of local problems and expected that people would maintain a high standard of civil behavior, the fence was so effective that the addition of the resident in person was thought to be unnecessary. In the assessment of private property, block safety,
the chances of someone cutting across the yard, and the chances of a resident intervening, the addition of a person contributed hardly anything. Even in the case of the would-be bicycle thief, the contribution of the resident was only a modest one. Where residents perceived that a lower level of civil order prevailed, however, the performance of fences was far weaker, and the presence of the resident contributed significantly to the power of the territorial message. This pattern of results provides a clear confirmation of Brower’s (1980: 190) suggestion that under high levels of threat, stronger, more redundant territorial displays become necessary.

Another finding related to perceived local threat was that the presence of a person sitting out in the yard had very different security implications for low- versus high-problem respondents. For low-problem respondents, a yard with the resident sitting out meant a safe block. The presence of the resident contributed as much to block safety as adding a fence. Apparently, the resident was seen as a defender of the space who would keep out intruders, discourage would-be thieves, and generally make the block more secure. This was generally what we had expected to find.

High-problem respondents, however, produced unexpected results. For high-problem respondents, the presence of a person sitting out, both with or without a fence, meant a more unsafe block. The most probable explanation is that high-problem respondents, projecting the image of an unpredictable and sometimes violent environment, where a fence could not be relied on to keep even casual trespassers out, saw a person sitting out as a potential victim. Sitting out endangered the residents themselves; thus, blocks with everyone indoors were rated as safer.

Another set of findings were as divergent and still more puzzling. For low-problem respondents, the presence of a person sitting out did not affect whether the space looked like private property or not. Privacy could apparently be achieved with physical means alone—mainly with fences
and planting. High-problem respondents, however, saw a person sitting out as making the yard less like private property. We offer the following explanation: Respondents interpreted the phrase “look like private property” to mean “look as if it affords privacy.” Low-problem respondents tended to project an image of an orderly environment. For them, privacy could be achieved by keeping outsiders out, and this could be done satisfactorily by means of fences and planting. High-problem residents projected a noisy, disruptive, and threatening environment. When no one was sitting in the yard, privacy meant keeping outsiders out of the space, and here again, fences and planting performed their function quite satisfactorily. Nevertheless, when someone was sitting out in the yard, there were additional intrusions upon privacy that had to be guarded against, including littering, bad odors, the sound of fighting and/or of interfering neighbors, and so forth, that could not be eliminated with fences or planting.

The findings also verified some of our generally held belief about defensible space features. The fence is a powerful security feature. The presence of a fence means that would-be intruders will have to make a deliberate effort to enter and that the occupant is determined to keep them out. The fence shows up with consistently high ratings as a delineator of personal property, as a sign of a safe block, and as a feature that discourages trespassing in the interest of either convenience (a shortcut) or profit (burglary). Only the actual presence of the occupant provides a deterrent of comparable strength to a fence. Fences were mentioned in response to one question or another by 22 out of 40 respondents—more frequently than any other single feature. Reasons for mentioning a fence showed two general perceptions. The first was that a fence made a clear separation between private and public territories and set up a physical obstruction to entrance into the private space. Therefore, an uninvited presence would require explanation. The second perception was that the erection of a fence
represented a deliberate effort on the part of an occupant to keep outsiders out. This suggested that the occupant would resent the intrusion of outsiders and would confront them.

It should be noted that the curb, which represented a symbolic barrier, did poorly throughout. It showed up strongest as a delineator of private space, and even then its effect was only marginal.

Signs of care are powerful security features. In choosing to represent territorial signs, we picked ornaments and planting because they occur frequently in the actual study blocks, and because we felt that as items of furniture rather than structure, they would be associated with the occupant rather than with the builder or the owner of the building.

We expected that in the presence of these features, respondents would perceive the space to be more protected against intrusion. The results confirmed our expectations in the case of planting, but not in the case of ornaments. Planting not only increased the likelihood that residents would intervene to stop intrusion, but also signaled private property, discouraged people from cutting across, and made the block look safer. Planting even seemed to discourage would-be burglars, although the effect here was weaker.

We considered a number of possible explanations as to why planting was such a powerful territorial sign, while the display of ornaments was not. The most convincing explanation was one that was voiced by many of the respondents: Planting implied that a resident was concerned about and cared for his property. In a previous study (Taylor, Brower, et al., 1976) also, planting was seen as a sign of care. Ornaments do not seem to convey this meaning. The reason may be that while ornaments also reflect an investment of time and energy, the investment is a one-time-only affair and could have been made by the landlord or by a previous occupant. Planting, on the other hand, if it is well maintained (and the uniform texture that was used to depict grass on the drawings suggested good maintenance), implies an investment that is current and continuing, which
in turn implies that the present occupant is making, and is therefore prepared to protect, that investment.

This explanation is in line with Hunter’s (1978) concept of “signs of incivility.” Hunter refers to the general finding that fear is more widespread than one would expect from a study of victimization levels. He suggests that people see neglect and abuse of the physical environment as signs of a breakdown of accepted civil behavior. Litter, trash, weeds, sagging porches, and peeling paint, when they are widespread throughout an area, speak of such a breakdown and so create a sense of fear in people who use the area, even though they have not themselves been the victims of crime.

Physical features function not only to keep outsiders out, but also to make residents more possessive. While physical features influence the territorial behavior of outsiders, the study suggests that they also influence the behavior of residents. High-problem respondents were more ready to stop someone from cutting across a yard if the yard was fenced. Apparently, the presence of the fence emboldened the resident, while informing outsiders that this was really “home” territory. In a similar way, a person sitting in the yard was more likely to stop someone from trespassing if the yard had been planted. Thus, physical elements function not only as signs of warning directed toward outsiders, but also strengthen the residents’ own sense of possession and provide additional justification for defensive action.

In summary, then, the present study has demonstrated that real (but not symbolic) barriers, as well as territorial signs that reflect continuing care, are decoded by residents from a range of neighborhoods as reflecting stronger residential territorial attitudes and behaviors. Furthermore, as local perceived threat increases, more redundant territorial displays are needed to maintain effective territorial functioning. Thus, residents do have agreed-upon decodings of defensible space features and territorial signs, while at the same time the perceived efficacy of the features and signs depends on context, as does the interpretation of a resident sitting out.
1. The main drawback of a small number of subjects is that, due to low statistical power \((1 - \beta)\), we may not "find" effects even though they really do exist "out there." To increase our power, we have used an efficient experimental design in which four independent variables (factors) are within-subject factors. This increases our power, since individual differences are more effectively separated from error variance.

2. The importance of explanation was impressed on us during the pretest, when one subject mistook the representation of a pottery cat wall ornament for a live rat. Also, that the door depicted a "back" door was not obvious from the drawings.

3. We could have done the analysis two different ways from the way we actually did it. First, we could have used a multivariate analysis of variance (MANOVA). We were unable to do this because of limitations in the number of cells allowed by available MANOVA programs. Second, we could have summed across the various questions to create a more general scale. This was not desirable, however, since the resulting scale scores would have been difficult to interpret.

4. Actually, there was a sixth question: "Is it a good-looking block?" We asked this question because we expected to find a connection between the perception of security and that of aesthetic value. Our expectation was realized. Residents saw features that made a block more safe as also making it more attractive. Discussion of this question and its results are omitted from this article, since it is not central to our main line of inquiry. Two of the five questions we do report on here—"How much does the yard look like private property?" and "Will a bicycle be stolen?"—were completely uncorrelated with each other \((r = .04)\), while the other three questions did intercorrelate with each other, and with these two. Thus, the reader who is concerned about the inflation of alpha due to analysis of multiple correlated dependent variables should treat our analyses of these two questions (private property, bicycle stolen) as definitive, and the additional analyses as descriptive or illustrative only. He or she will note, however, that the additional analyses merely reinforce the pattern of findings observed with the first two questions.

5. Our experimental design was a full factorial one, and thus there were no correlations between any of the independent variables.

This mixed design contained both between and within (repeated) factors. To analyze such data using multiple regression requires several adjustments to the data (see Cohen and Cohen, 1975, Ch. 10 for full details). The reader will probably be least confused, however, if he or she simply thinks of our analysis in an ANOVA perspective. That is, we are concerned with the significance of particular main and interaction effects, not the total amount of variation explained by all of the main and interaction effects. Thus, we do not report adjusted total R²s, total R²s, or significance tests for these.

6. Naturally, our perceived threat factor correlates somewhat with socioeconomic factors, as described above. This makes sense because socioeconomic factors also correlate strongly with objective threat (that is, crime), and we would expect the objective and subjective threats to map onto each other. Unfortunately, it is not possible to hold neighborhood type (a proxy for SES) as a covariate and to get a measure of the effects, purely, of perceived threat. To covary out the former
would destroy the latter. In our opinion, given that the degree of covariation is not overwhelming, and given the full pattern of results, we do not feel that the results obtained here for our perceived threat factor can be completely explained by SES.

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