RESIDENTIAL TERRITORIES
CUES TO BURGLARY VULNERABILITY

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☐ Newman's work on defensible space and Altman's work on territoriality were used to formulate a hypothesis that certain design elements enhance or reflect residential territoriality and thereby influence burglars' target selections. Specifically, evidence on the links from real and symbolic barriers, traces, and detectability features to burglary vulnerability and residential territoriality are reviewed. ☐

In 1981, 7,394,000 households in the United States were burglarized at a rate of 7 burglaries per 100 households (U.S. Department of Justice, 1983). For over 20 years researchers have examined the links among environmental design and human behavior to explain why criminals choose particular targets. The present paper draws from work on defensible space and territoriality to describe a model of burglary vulnerability based upon four broad classes of environmental features: symbolic barriers, actual barriers, traces, and detectability. Current research that supports the model's four categories of burglary vulnerability is described with particular emphasis given to the author's application of the model to a study of suburban burglary.

NEWMAN AND DEFENSIBLE SPACE

The first major link from environmental and social characteristics to crime rates was forged by Oscar Newman, an architect. His observations of crime rates in two federally funded housing projects led him to promote designs that enhance the "defensible space" of the residents. According to Newman (1972):

> Defensible space . . . inhibits crime by creating the physical expression of a social fabric that defends itself. The potential criminal perceives such a space as controlled by its residents, leaving him an intruder easily dealt with. (p. 13)

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Newman described design features that would elicit a "latent territoriality and sense of community" (p. 3) from residents. In particular, Newman favored designs that allowed for informal surveillance and the creation of residential zones of influence perceived by neighbors and potential criminals alike. Informal surveillance potential can be enhanced by proper placement of windows, walls, and landscaping to provide the residents with clear views of neighborhood areas such as playgrounds, parking lots, pathways, entryways, and lobbies. Zones of influence can be created through site clustering, color coding, or delineation of territorial borders that limit public access to an area and encourage the creation of community ties among neighbors.

Newman's recommendations received tremendous support from research agencies and the popular press. The recommendations were incorporated into the existing housing-policy guidelines for several states (Dingemans, 1978). Federal programs were created that combined Newman's approach with those emphasizing social, management, and law enforcement strategies for crime prevention. This combination, the Crime Prevention Through Environmental Design approach (CPTED), was designed to decrease crime and fear of crime in residential, commercial, transportation, and school settings (Tien et al., 1976). Clearly, Newman's ideas have had great impact on current crime prevention and design trends.

Newman's ideas also fed into existing academic research on the effects of environmental influences on social behavior. For example, reference to Newman's work can be found in literature on the geography of crime (Capone and Nichols, 1976; Duffala, 1976; Harries, 1976; Molumby, 1976). His ideas have also influenced more traditional social psychological studies, such as studies of the links between territoriality, crime, and fear of crime for elderly populations (Patterson, 1978).

Despite such impact several critics have faulted Newman for both methodological and conceptual issues. Some have challenged his research methods, including his sample selection procedures and dependent measures, as well as his statistical analyses, conclusions, and generalizations (Hillier, 1973; Kaplan, 1973; Mawby, 1977; Patterson, 1977). Others (Adams, 1973; Dingemans, 1978; Mawby, 1977) have pointed out that Newman's design recommendations are never integrated into a unified framework. For example, minimal attention is given to the number of design factors necessary for defensible space, the relative importance of each cluster of design factors, and the effects of combinations of design factors.

One can also argue that Newman's analysis ignores the cognitive and behavioral processes underlying defensible space. Newman's original thesis appeared to presume that certain designs automatically elicit territoriality. Most critics favor less deterministic conceptions of the relationship between design and territoriality (Brown and Altman, 1981; Taylor et al., 1980). Subsequent work in the area of defensible space has been geared toward more rigorous assessment of the role of design in vulnerability to crime and toward exploring links among physical designs, territorial cognitions, and behaviors.

A TERRITORIAL APPROACH TO SUBURBAN BURGLARY

The Territorial Model

Brown and Altman (1981) developed a territorial model of residential burglary that was applied to a subsequent study of burglaries in a suburban setting. The model stated that burglars are especially sensitive to the variations between the following three types of

territories described by Altman (1975). *Public territories,* such as bus seats or city sidewalks, are least central and enduring; *primary territories,* such as bedrooms and homes, are most central and enduring. In between are *secondary territories,* such as bars and certain neighborhoods, which are intermediate on the dimensions of centrality and duration and are often jointly owned by members of a group.

Brown and Altman (1981) further reasoned that there were additional differences among public, secondary, and primary territories. In public territories, markers are often utilitarian objects (e.g., sweaters, books) placed with the specific intention of "staking out" a territory and regulating access to it. Because owners establish no deep psychological investments in the territory they do not react strongly to intrusions. In primary territories, on the other hand, owners identify highly with the territory and use decorative markers intended as self-expressions. Because of the strong psychological ties to primary territories, residents react quite strongly to intrusions. Thus primary, secondary, and public territories differ in terms of marker type, marking intentions, and reactions to intrusion in addition to previously noted differences in duration of occupancy and psychological centrality.

The above differences can be used to interpret Newman's observations of crime in public housing projects. Newman found lower crime rates when a secondary territory provided a buffer zone between the public street and the primary territory of the apartment unit itself. Conversely, higher crime rates were observed when the public territory, one where individuals can act without fear of censure by others, extended right to the threshold of the apartment.

Given that the conceptual differences among types of territories appeared to converge with Newman's observations of actual crime rates, a sequential model of the burglars' decision-making processes was developed. This model assumed that burglars implicitly or explicitly assess the relative degrees of territorial boundary permeability of residential streets, house sites, and houses. Naturally, most burglars try to avoid houses that appear to be occupied or inaccessible. The territorial model goes beyond these obvious points and states that evidence of territorial surveillance and concern are important as well. A burglar is expected to prefer a territory that appears to be public and open, compared to a territory that appears to be private and closed to strangers. For example, a burglar should be more at ease on a street with a public territorial quality than on a street that the neighbors treat as a secondary territory. Similarly, burglars will choose homes with few primary territory markers over homes with many markers.

Within this model then, the territorial markers hypothesized to deter burglars may not provide physical barriers to access. The deterrent value of the markers stems from the symbolic communication of residents' concern for and defense of the territory. The physical indications of territoriality, hypothesized to be important in the decision-making processes of burglars, are conceptualized as belonging to four classes of territorial indicators, as outlined below.

The Territorial Features

Symbolic Barriers. These barriers are physical qualities that communicate the territorial concern and personal identity of the owners (Newman, 1972). In a residential setting the landscaping, hedges, welcome mats, and the color of the house all serve as markings or personalizations indicating territoriality. Such markers may communicate the territorial concerns of specific families or of entire blocks.

Actual Barriers. These barriers are aspects of a security system such as locks, alarms, and guards that may impede access (Newman, 1972). Clearly, weak or absent real barriers are associated with burglary (Reppetto, 1974).

Traces. Traces are clues that inform the burglar of the probable presence or absence of residents or neighbors. The burglar may actually see the owners or infer their presence by sensing clues such as lights, cars, television noises, uncollected mail, etc.

Detectability. The detectability factors include various aspects of visual or auditory accessibility of a home and of people near or in the home. Examples include the positioning of houses or trees and the existence of squeaky gates or barking dogs. Detectability is hypothesized to be important in the development and defense of neighborhood territories.

Through a review of the literature, preliminary observations of houses, and discussions with burglars, a rating system was devised that included specific examples of actual and symbolic barriers, traces, and detectability factors.

A total of 18 clusters were developed to measure the four general classes of territorial features. The 18 clusters were used to compare a total of 306 burglarized and nonburglarized houses within one neighborhood in Salt Lake County (hereafter referred to as the Salt Lake study). It was expected that burglarized houses would appear to be more public and open to intrusion through a combination of weak symbolic and actual barriers, few traces, and poor detectability.

A suburban neighborhood was chosen for the Salt Lake study because both Newman and Altman emphasized that territorial personalizations may reflect the residents' territorial attitudes. Although Newman's observations concerned public housing projects, these tenants rarely have much control over the outside personalization of their dwelling. Suburbanites, on the other hand, typically have very strong financial and psychological investments in their homes, which they may display through home decoration, design, and upkeep. Thus a suburbanite's choice of and modifications to the dwelling are likely to reflect the personal preferences of the occupants.

Differences Between Burglarized and Nonburglarized Houses

Of the 18 clusters developed (see Brown, 1983 for a complete description) six were found to distinguish between burglarized and nonburglarized houses. The following review describes these six differences in terms of the fourfold territorial classification of symbolic and actual barriers, detectability, and traces. Results of other studies are also treated within this framework to provide a broad overview of the variety of ways in which design is linked to burglary deterrence.

Symbolic Barriers

In the Salt Lake study, two classes of symbolic barrier cues distinguished burglarized from nonburglarized homes. Nonburglarized homes were more likely to have clear statements of the owner's identity displayed through name or address signs on the house or front lawn. These symbols were hypothesized to show that the residents cared enough about their territory to personalize it. Burglars were presumed to detect a high level of territorial concern and to assume that residents would be more defensive against intruders. In addition, the burglar might infer that residents of personalized dwellings are very

community spirited. These residents might be more likely to have concerned neighbors to look after their property.

The use of a name plate is just one of many ways in which owners may reveal their attachments to their primary territory. Other primary territory personalizations that made no difference in deterring Salt Lake burglars included the amount of flowers, lawn furniture, degree of architectural uniqueness, elevation differences, or surface qualities (material, color) of the house. While the underlying concept of personalization still should be a valid method of communicating territorial concern and attachment, it is likely that particular methods of achieving unique appearances will vary depending on constraints and opportunities provided in the setting.

An opposite argument, that personalizations create vulnerability to burglary, also sounds intuitively appealing. Personalizations could serve as clues to the burglar that the residents are wealthy and have goods worth stealing. In fact, drawings of houses with curtains, flowerboxes, and ornaments have been found to evoke images of "high class" more than similar drawings that had the personalizations removed (Taylor et al., 1976). But personalized houses were also perceived to be in neighborhoods that were "desirable," "safe at night," and had "strong community organizations." Thus, the same symbols that may lead burglars to expect a high payoff may also lead them to expect defensive behavior on the part of residents. National statistics provide indirect support for the deterrent effect of personalizations. Despite the fact that personalizations may be most prevalent in the suburbs, burglars do not choose these lucrative targets as often as they choose households of the young, the poor, and renters (U.S. Department of Justice, 1983).

Returning to the Salt Lake study, the second component of symbolic barriers that distinguished the two house groups involved public street signs. Burglarized houses were more likely to have public street signs such as "Yield" or "25 MPH" or "Pedestrian Crossing" positioned somewhere on the block. It may be that burglars feel more comfortable on blocks with such signs because they are signals directed to the public at large. When these signs show that the general public is accommodated on the block, then the burglar is likely to feel less conspicuous or intrusive. A possible counterargument is that street signs just signify heavy traffic, which is, in turn, related to burglary. A 15-minute traffic count in the Salt Lake study did not support this counterargument. Burglarized blocks had as much pedestrian and vehicular traffic as nonburglarized blocks. In this sample it seemed to be the symbolic indication of openness to public use that made the difference, not striking differences in actual public use.

Symbolic barriers do not have to be strictly environmental in form. Social clues may also convey to criminals the degree of territorial boundary permeability in an area. For example, ethnic diversity in one apartment complex was cited as one reason why residents refrained from involvement with their neighbors (Merry, 1981). The different ethnic groups remained distant from one another because they found it difficult to interpret and understand each others' behavior and customs. The ethnic differences and aloof behavior of residents created a quite permeable symbolic barrier; strangers realized that they could enter the area and behave as they pleased.

Brantingham and Brantingham (1975) may have discovered much the same phenomenon with a quite different methodology. They used neighborhood census data to draw social boundaries between blocks when adjacent blocks differed in terms of housing value, rent, ethnicity, and proportions of single-family dwellings. Higher crime rates occurred on blocks along these social boundaries than on the interior blocks. Although residents were not interviewed, one can speculate that residents in heterogeneous boundary

areas failed to develop group territories with their neighbors because of their social dissimilarities.

In other studies, symbolic barriers used to personalize private territorial claims have been linked to actual crime rates, fear of crime, and perceptions of territoriality. As mentioned previously, individuals perceive personalizations such as flowerboxes, ornaments, and outdoor furniture as signs that the neighborhood is quite safe at night (Taylor et al., 1976). Conversely, individuals perceive poor maintenance, few trees, and few exterior decorations as signs that residents will be concerned with crime (Craik and Appleyard, 1980).

Actual links between residents' personalizations and other indicators of territoriality have also been demonstrated. Anecdotal evidence suggests that gardening projects in urban high-crime areas increase residents' behavioral involvement with the neighborhood, their sense of neighborhood cohesion, and general neighborhood upkeep, as well as decreasing vandalism in the area (Lewis, 1979). In another study, backyard gardeners were found to perceive lower levels of territorial problems (e.g., vandalism, littering) and to judge it easier to distinguish neighbors from strangers (Taylor et al., 1981). Fences, hedges, and "no trespassing" signs on houses have been linked to faster responses to a doorbell, an indication of quicker territorial defense (Edney, 1972). Finally, a range of symbolic demarcations, including personal identity markers, were associated with resident perceptions of territorial security (Patterson, 1978).

Note that while Newman considered signs of private access and use to be symbolic "barriers," this term was developed with reference to an intruder's perception of these symbols. What may serve as barriers to individuals intent on wrongdoing may simultaneously be symbols of community pride and cohesion to fellow neighbors (cf. Lewis and Maxfield, 1980 concerning physical and social civilities and incivilities).

Actual Barriers

Nonburglarized houses in the Salt Lake study were more likely to have boundary barriers to access such as fences or hedges. Surprisingly, this finding was a novel one (cf. Booth, 1981; U.S. Department of Justice, 1980). Upon reflection, it is possible that fences provide more symbolic than actual protection from intruders. In the suburban environment few fences are high enough and few gate latches strong enough to halt a determined intruder. In fact, in the Salt Lake study, houses were credited with these actual barriers even when the fences just ran along one property boundary but failed to enclose the property. The true deterrent value of fences may be that they reduce ambiguity associated with territorial intrusion. It is clear both to the burglar and to the neighbors that strangers who cross the border of the fence without legitimate reason are intruders.

The more common focus on actual barriers, although not examined in the Salt Lake study, has been on security hardware for doors and windows as well as alarm systems. While devices such as dead bolt locks are useful deterrents to burglars (Rubenstein et al., 1980; Waller and Okihiro, 1978), residents often fail to use their security hardware properly (U.S. Department of Justice, 1979). In fact, in 1975, 44% of the residential burglaries required no technical sophistication on behalf of the burglar; the burglar simply entered through an unlocked door or window (U.S. Department of Justice, 1979). Burglars who are faced with a locked entryway can often break in without having to rely on sophisticated skills because simple maneuvers such as kicking, prying, or smashing often prove successful. Consequently, and contrary to popular belief, technical requirements

of entry rarely prove to be of utmost concern to burglars (Letkemann, 1973; Maguire and Bennett, 1982; Reppetto, 1974).

Detectability

Detectability factors describe the visual and auditory accessibility of a dwelling and of people near or in the dwelling. The optimal burglary target is one where the burglar can determine, through visual inspection, the probability of the residents being home and the options available for access and escape routes. Simultaneously, the burglar wants to avoid detection by concerned neighbors and passers-by.

In the Salt Lake study, burglars avoided designs that allowed for adjacent house visibility. This particular index of detectability was taken from a vantage point in front of the house. When glancing to the right, left, and across the street, more neighboring houses on the block were visible from a nonburglarized house than from a burglarized one. The burglarized houses suffered poor detectability for reasons such as a corner lot position within the block or visibility screens due to trees, winding roads, or hilly terrain. Whatever the cause, burglars may have felt more secluded from view when approaching a burglarized house. These findings were consistent with the finding that burglaries occur where there are opportunities for concealment near doors and windows. (Rubenstein et al., 1980).

A view of neighbors' houses may also protect from burglary indirectly by encouraging neighborhood territoriality. Previous research has shown that neighbors often become acquainted when they see each other in the course of daily chores—gardening, collecting mail, or just walking to and fro (Beck and Teasdale, 1978; Festinger et al., 1950). In neighborhoods where the design encourages such informal contacts the neighbors are more likely to develop a sense of group territory and to become protective of each other's territory. Thus enhanced detectability may not only make an intruder's actions visible, it may also encourage a degree of familiarity and concern among neighbors that motivates them to challenge an intruder's presence.

Many crime-prevention guidelines fail to recognize that surveillance opportunities must be combined with a sense of responsibility on the part of onlookers in order to provide protection against crime. Much of this neglect can be traced to concepts of city planning popularized by Jane Jacobs, a prominent supporter of the concept of mixed residential and commercial land usage. She believed that the steady flow of traffic generated in such areas would provide many "eyes on the street," which would ensure a level of safety.

Newman (1972) disagreed with Jacobs and asserted that the mere presence of onlookers would not confer defensible space to an area. He stated that "commercial and institutional generators of activity do not, in and of themselves, necessarily enhance the safety of adjoining streets and areas" (p. 112). "The success or failure of a particular configuration depends as much on the degree to which residents can identify with and survey activity in the related facility as it does on the nature of the users of that facility and the activities they engage in" (Newman, p. 114). Nonetheless, such social considerations are often neglected in tests of defensible space. In a recent example, the defensible space hypothesis was deemed to be supported if "low crime is associated with mixed residential and nonresidential use" (Greenberg and Rohe, 1984, p. 50). It is clear that future tests of the defensible-space concept must take into account the quality as well as quantity of onlookers provided within an environmental setting.

The "eyes on the street" notion suffers from a lack of empirical as well as conceptual

support. Latane and Darley (1970) demonstrated convincingly that *increasing* the number of onlookers actually *decreases* the likelihood that any one individual will intervene in a witnessed emergency. Thus criminals in highly trafficked areas may realize that onlookers either do not recognize an ongoing crime or do not feel personally responsible for taking action. For example, vandals will readily strip a car in broad daylight when the onlookers have no apparent investment in protecting the car (Zimbardo, 1973). Similarly, a high volume of traffic has been found to be associated with street crime (Angel, 1968).

Certain environmental conditions discourage residents from translating the potential for territorial surveillance into instances of territorial defense. High volumes of traffic on residential blocks appear to discourage residents from exerting territorial control (Appleyard, 1981; Appleyard and Lintell, 1972). Residents of highly trafficked streets have been shown to know fewer of their neighbors and to spend less time in front of their house. These residents do not extend their perceived zones of territorial ownership beyond the boundaries of the house itself. They may, in fact, orient the bulk of their activities toward the quieter back regions of the house. The only eyes on the street may be those of other passersby who have no vested interest in the protection of the territory. Thus a heavy traffic flow may create a vulnerability to crime by turning a neighborhood street into a public territory; a light traffic flow may protect from crime by creating a private zone and enhancing the development of a shared secondary territory among neighbors.

Other environmental conditions encourage the translation of detectability potentials into responsibility for defense. In multiunit residential settings Newman recommended that this goal be accomplished by clustering a small number of units around semiprivate entryways and positioning windows to allow informal surveillance of these semiprivate buffer zones. In addition to creating the physical possibility that neighbors can look after one another's property, these designs are also thought to encourage a number of social expressions of territoriality. By limiting the number of outsiders and reducing the number of residents, neighbors may come to recognize each other and be able to distinguish fellow residents from outside intruders. The common entryway space, small number of residents, and informal surveillance opportunities are expected to enhance feelings of group identity and common defense of group space.

These expectations were tested in a design intervention conducted in neighborhoods in Hartford, Connecticut (Fowler et al., 1979). Of eleven streets involved in the intervention, some were converted to one-way streets or cul-de-sacs while others were blocked off or had their entrances narrowed. The immediate results of these changes included a decrease in the burglary rate, a decrease in the traffic rate, an increase in pedestrian use by residents, and modest improvements in the residents' neighborliness. Specifically, informal house-watching arrangements between neighbors increased as did their reported ability to distinguish strangers from other residents on the street. Despite these results, residents were not more likely to feel that the neighborhood was a better place to live, to feel more a part of the neighborhood, to perceive their neighbors as helpful people, or to decrease their fear of burglary. Similarly, residents were no more likely to intervene in suspicious situations or to feel that their neighbors would do so. Therefore, a territorially restricted appearance may protect against burglary despite the absence of strong territorial attitudes among residents.

A second evaluation, conducted two years later, unexpectedly showed that the feelings of territorial control and cohesion had increased. Residents felt that the neighborhood

was a better place to live, that they were more a part of the neighborhood, and that their neighbors were helpful people who would intervene in a suspicious situation. Additionally, actual reports of residents intervening in suspicious situations increased. Residents reported lower fear of burglary and robbery despite the fact that the actual burglary rate, which had decreased after implementation of the program, had risen back up to the expected levels. Future research is needed to clarify the reasons for differences between short- and long-range effects on street redesign.

In a suburban setting, cul-de-sac designs appear to provide detectability opportunities and to facilitate the development of secondary territorial ties among neighbors. Residents of houses on cul-de-sacs have reported greater identification, greater sense of security, and a stronger sense of community on the block than residents of through streets (Brown, 1983). Cul-de-sac residents also reported more social contacts with a larger proportion of their block neighbors than did residents of through streets. These results held even after controlling for the smaller size of the cul-de-sac blocks (Brown, 1983). Perhaps because of the restricted accessibility and enhanced territoriality, cul-de-sacs have lower burglary rates than through streets (Bevis and Nutter, 1973; Brown, 1983).

A study of robbers of residences confirms that they consider detectability features in conjunction with social features of territoriality (Merry, 1981). Robbers divided residents into types: those who would do nothing, those who would intervene directly (usually by verbal confrontation), and those who would call authorities. Although robbers generally preferred to work in low-visibility areas, they would work in view of the first type of resident but would avoid working within the surveillance zone of the third. Burglars, interviewed in a separate study, showed agreement with the robbers concerning deterrents to crime. Although only 5% of burglars said that strong locks would deter them, 23% admitted they would be deterred by "neighbors checking." The older, more experienced burglars seemed even more wary, with 35% of them reporting deterrence by neighbors (Reppetto, 1974).

Empirical tests of the efficacy of visual surveillance that neglect to take into account the neighbors' sense of territorial responsibility yield contradictory results, as expected. For example, in a study of university staff housing, dwellings positioned midblock experienced fewer burglaries than dwellings on the end of the row, where detectability by neighbors was limited (Odekunle, 1979). However, a study of more socially diverse neighborhoods revealed no differences between midblock and corner burglaries (Waller and Okihiro, 1978). Similarly, a recent review of 15 street-lighting projects, which ignored the territorial attitudes of the users, revealed no association between crime and street lighting (U.S. Department of Justice, 1980). Therefore, future research should consider that territorially protective attitudes are needed to capitalize on the design potentials for territorial defense.

Traces

Traces describe the actual or implied presence of residents. Current crime prevention programs emphasize the importance of disguising extended absences from home by having neighbors collect the mail and newspapers, mow lawns, etc. In the Salt Lake study, although the houses showed few definite signs of absence, the burglarized houses had fewer definite traces of presence. These traces included such signs of occupancy as sprinklers operating, parked cars, and tools in the yard. No data were available to de-

termine whether burglarized residents actually spent fewer hours at home. In any case, the appearance of occupancy was linked to protection from intrusion.

Another type of trace that distinguished the two groups of houses was the presence of a garage. Nonburglarized houses were more likely to have garages attached to them. It is possible that garages provide a protective shield to mask the absence of the resident. When the resident typically parks the car in the driveway or on the street, that resident's absence is quite noticeable when the car is gone. However, when the car is typically parked in a garage and the garage doors closed, the burglar cannot use the car as a signal of presence or absence.

Surprisingly little research has focused on traces as deterrents to burglary. While most burglary-prevention programs encourage residents to have neighbors disguise signs of absence and to use timers and lights to create traces of presence, few studies have examined their actual deterrent value (Lavrakas, 1981).

SUMMARY AND CONCLUSIONS

Because of the proliferation of potential burglary targets, burglars can afford to be choosy. Research reviewed in the present paper suggests that subtle signs of territorial occupancy, detectability, accessibility, and concern can deter burglars. Results of an intensive study of a Salt Lake County neighborhood revealed six specific differences between burglarized and nonburglarized houses, as illustrated in Figures 1 and 2. Nonburglarized houses appeared to be strong primary territories because of the presence of symbolic identity markers and actual barriers, which communicated privacy and individuality. Nonburglarized houses had detectability features that provided clear views of adjacent neighboring houses. Finally, the traces of presence and garages indicated greater use or implied use by the residents of nonburglarized houses. By contrast, the burglarized properties appeared more public and open to intrusion (tested via stepwise multiple regression; this yielded multiple $R = 0.14$, $F(6,197) = 5.19$, $p < 0.01$). As the review of other research indicates, these six features represent just a sampling of the range of territorial features that have been associated with burglary deterrence.

FIGURE 1. A nonburglarized house on a nonburglarized block. (Reprinted with permission from *Environmental Psychology*, by Fisher, Bell, and Baum, p. 188.)
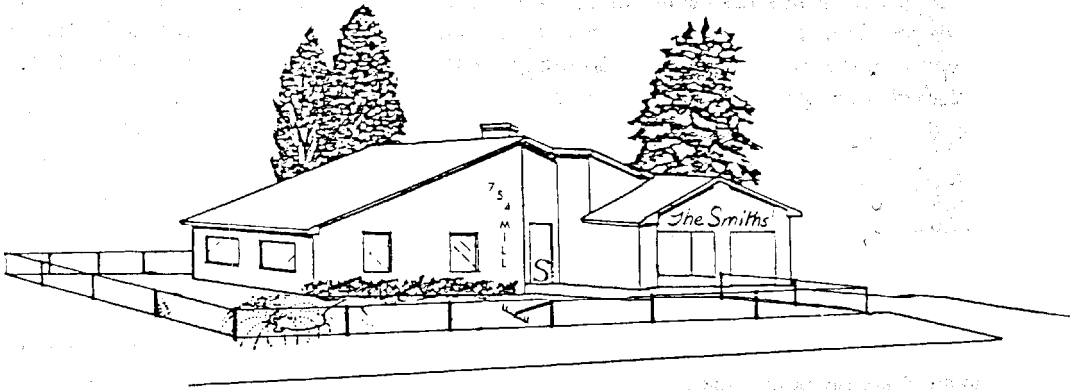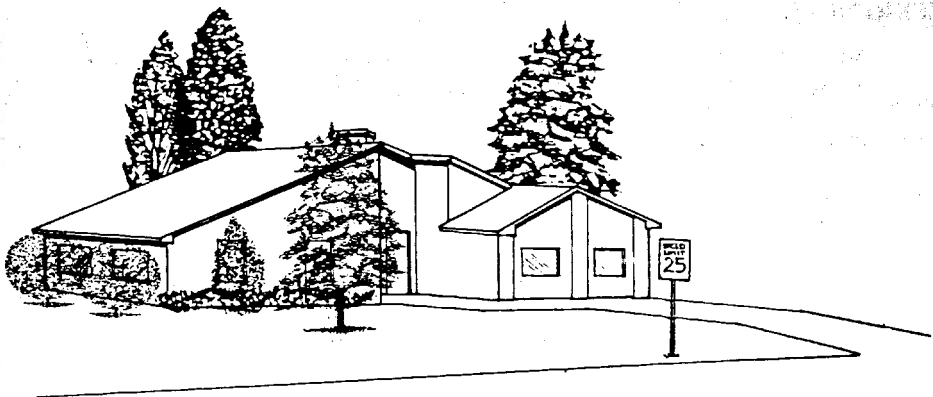
FIGURE 2. A burglarized house. (Reprinted with permission from *Environmental Psychology*, by Fisher, Bell, and Baum, p. 188.)

Several areas of uncertainty concerning the role of territoriality in crime prevention remain. In particular, it is not clear whether or when territorial claims need only be apparent to be effective. For example, it is not clear whether the mere appearance of individualized and unique territories, achieved through color coding, identity markers, or restricted access, will deter criminals in the absence of territorial attitudes and behaviors on the part of residents. Burglars may prefer to avoid the risk of "testing" residents whose dwellings appear strongly territorial to see if the appearances are reinforced by territorial behavior. Future research and theory needs to address the separate and combined influences of social and physical components of territoriality on criminals' selections of targets.

Similarly, relationships among the four classes of territorial features outlined in the present paper have not been examined. In combination, these features may amplify or cancel out the effectiveness of each other. For example, the deterrent impacts of symbolic barriers and detectability factors may be multiplicative, not additive, when both are present. Similarly, a fence acting as an actual barrier may have its deterrent impact reversed if the fence is high enough to block visibility.

Relationships among secondary and primary territiorial features are also vague. Residents who choose to create highly individualized primary territorial appearances may prefer to avoid, or may be rejected from, the chance to develop a secondary block territory with the neighbors. The relationship between primary and secondary territories may reflect universal tensions existing between individuals and groups.

Finally, this paper has focused exclusively on the goal of crime deterrence in design. Residents and designers must take into account all of the consequences of design elements. For example, cul-de-sac designs may reduce the crime rate and increase the strength of the secondary block territory but may confuse motorists and impede emergency vehicle access. Or, designs that allow for informal surveillance of neighbors' houses may also thwart the residents' desires for privacy. Of course, not all of these unforeseen effects of designs will be unpleasant. For example, residents of cul-de-sacs have been found to enjoy greater pride in their home appearance and a greater sense of security and community on the block than residents of through streets (Brown, 1983). Residents and designers must judge how to fit potentially crime-deterrent design guidelines into the total package of design goals.

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