A CPTED BIBLIOGRAPHY:
PUBLICATIONS RELATED TO URBAN SPACE, PLANNING, ARCHITECTURE AND CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN, 1975-2010

Sean E. Michael, PhD
Gregory Saville, MES, MCIP
Joel W. Warren

2.12 Edition
Acknowledgements

This compendium is the result of two different bibliographies. The first was completed by Sean Michael, Professor and Department Head of the Department of Landscape Architecture and Environmental Planning at Utah State University. The second was completed by Gregory Saville, urban planner and Principal of AlterNation Consulting, started during graduate work at the Faculty of Environmental Studies at York University. Consolidation and expansion of the two works was overseen by Joel Warren, during his Masters of Landscape Architecture at Utah State University.

Our thanks go to the many students, colleagues, and friends who contributed to this work over the years. They include: Anna Brassard, Paul Cozens, Misty Fitch, Chuck Genre, and Diane Zahm. Earlier versions have appeared in different venues through the years such as the 2003 ICA CPTED Bibliography available on CD through the International CPTED Association and the Latin America CPTED Region Corporation. In addition, Emerald Press has published a detailed literature review of basic 1st Generation CPTED studies (P. Cozens, G. Saville and D. Hillier, “Crime prevention through environmental design: A review and modern bibliography”, Property Management, 23(5), 2005). Finally, an early version was available via The CPTED Page (www.thecptedpage.wsu.edu). Today, the resource is jointly hosted through the web site of Safe Cascadia (www.safecascadia.org)
References


Ahlberg, J., & Knutsson, J. (1990). The risk of detection. *Journal of Quantitative Criminology, 6*, 117-130. This work examines means by which the likelihood of an offender being detected may be calculated. However, the formulas presented are not meant to be applied at the individual or situational level, rather they are for estimating figures for the populous of offenders. The authors discuss "the dark figure" (i.e., the number of "crimes not detected and crimes not reported") and "the clearance rate" (i.e., "the percentage of the crimes reported which are considered cleared" by police). The authors also point out that detection at the situational level is composed of "total risk of detection" and the "primary risk of detection". The primary risk refers to being caught in the act, versus all possible means of being detected (e.g., post facto). Surprisingly, the authors do not believe that offenders have much control over getting "caught red-handed", saying that "to get caught in the act is a random occurrence."


Responding to the lack of hard data on street lighting's impact on crime, this work sought to fill the gap by studying a London borough undergoing relighting, partly to reduce crime. Working from an immense data set the study found "No evidence...to support the hypothesis that improved street lighting reduces reported crime...[a]lthough some areas and some crime types did show reductions in night-time crime relative to daylight control." Additionally, it found "[t]he perceived safety of women walking alone after dark in the re-lit area was improved, but few other effects were statistically significant.


"The purpose of Vandals Wild is to help create better understanding of the outdoors, to create concern about the worsening behavior problems, to show what is happening in our forests, waters and beaches (p. iii)." The authors is, as the work's title implies, talking about the impacts of vandalism. He goes on to discuss how it "kills" even inanimate objects in parks, discussing costs, causes, types and actions in the process.

In this chapter the author explains the "situational approach" to studies of offending determinants, reviewing research methods and sampling techniques (including video-tape and interview method). The study discussed dealt with the concept of "risk, reward, and ease of entry" as perceived by burglars. The study found that decision to offend or not to offend was more influenced by risk (of being caught) cues than by reward or ease of entry cues. These findings are supported by a great deal of accumulated research.


This paper briefly discusses methods and findings in using past offenders as subjects in studying situational crime prevention. It is one of the first such attempts, and the authors are well known now for their ongoing use of so-called "direct methods of investigation." Included are reviews of both photograph and videotape methods.


Awarded the 1st Prize at the Society's '77 Student Competition, this study found that dead end, cul-de-sac and L-type blocks experienced lower rates of crime than did through streets or t-type blocks (also submitted to Governor's Commission of Crime Prevention and Control, St. Paul, MN).


The author reflects on his years in the New York City Police Department, and his efforts to incorporate trees into the streets of Harlem and the Bronx, as well as other efforts of early "community policing" such as transforming empty lots into community gardens, cleaning trash from the Bronx River, as well as other projects. The most interesting aspect of this brief retrospective is how thoroughly the author's personal love of forests affected his service to the people within his watch.


Brantingham, P. J., & Brantingham, P. L. (Eds.). (1981). *Environmental criminology*. Beverly Hills: Sage. According to the authors, a crime takes place when all of the essential elements are present. These elements consist of: a law, an offender, a target, and a place. They characterize these as "the four dimensions of crime", with Environmental criminology studying the last of the four dimensions. This important book chronicles the subject from its inceptions through the '80s, discussing research, major areas of study. Chapters are written by such authors as Brown & Altman, Wood, Mayhew and Mawby.


In this thorough and insightful chapter the author chronicles the conception, conceptual models of, and changes to crime prevention on this continent. In calling for further theoretical and applied research, she concludes that of the two levels at which prevention is proceeding-standardized programmes versus those specific to a socio-geographic environment-"...standardized programming is unlikely to work..." thus more investigation is needed in the latter area.


This paper is extremely useful for the reader wishing an understanding of the past two decades of research on the relationship between crime and the physical environment. Over 200 works are cited in the process of discussing the field's progress and status. The authors utilize a theoretical framework to describe the range of studies conducted on the subject. This includes: 1) the complex etiology of crime; 2) the crime patterns of individuals, with particular attention to how the physical environment influences their behavior; 3) aggregate crime patterns, with particular attention to how the physical environment influences them. Also introduced are the concepts of nodes, paths, edges and an 'environmental backcloth'. The authors close with a discussion of general directions research should take from this point. They note the uniquely well developed understanding of burglary and suggest that research in other areas is needed to bring them up to similar levels. In particular they bring up the need for investigation of cognitive mappings pointing out that "the cognitive physical and spatial environment does not exist independently of the cognitive, social, cultural, economic, legal and temporal environment."


This article provides an overview of plants for various climates that may deter intruders. It suggests that many residents object to the use of thorny plants, however, so their application must be site-specific. The author advises the use of such plants in conjunction with other barriers, such as fences, to make them more effective.


This report is one of a series on 'Victimization, Fear of Crime, and Altered Behavior' in public housing projects. The reports aim at gathering statistical information to be used for comprehensive security plans at the projects. One section deals with building design and location of crimes committed.*


Responses to varying images of defensible space features and territorial signs were measured utilizing line drawings with variations in key features. "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.


This paper uses "Newman's work on defensible space and Altman's work on territoriality to formulate a hypothesis that certain design elements enhance or reflect residential territoriality and thereby influence burglar's target selections. Specifically, evidence on the links from real and symbolic barriers, traces, and detectability features to burglary vulnerability and residential territoriality are reviewed." The review of relevant literature is effective and useful.


With this study the focus of burglary prevention was heading towards use of cues. It was developing territoriality theories to great detail. The weaknesses the authors experienced, however, appear to have led to studies employing burglars. In that way researchers were able to overcome much of the guesswork that was otherwise necessary to determine decision making by criminals.


The extensive work examines recreation users' perceptions of risk in "well-wooded landscapes on the fringes of towns and cities" in the United Kingdom. It evolved out of an effort to increase and broaden the patronage of these settings. As a potential deterrent to usage, perceptions of risk were examined from a number of perspectives, including: kinds of perceived risks, extent to which perceptions of risk inhibit use, and strategies recommended for reducing perceptions of risk. Also included is a thorough review of existing literature. Qualitative methods (participant observation and focus groups) were employed in an attempt to improve on the shortcomings of other methods, especially rating of photographs. Data collection was completed between January and May of 1993, at two urban fringe sites. Noteworthy findings include those concerning "enclosure", "entrapment", and isolation. Addressed are specific impacts of these factors on patrons' perceptions of risk and their use of woodlands. Gender differences are addressed, as are recommendations relevant to environmental designers and resource managers.


Historically, social scientists have argued that human behavior is, to a large degree, a response to environmental conditions. Recently, a group of criminologists posited a direct relationship between certain environmental structures and reported crime rates. Studies exploring this area have pointed to the association between crime rates and high rise residences as support for their position....Using victimization techniques, the experiences of residents of several high and low rise structures in a traditionally low crime area such as the college campus were investigated.....Although causality can not be inferred from the findings, a positive association was observed between high rise areas and property crime rates.


This article at first seems more appropriate for aiding in the solving of crimes, however the application to deterrence is apparent. The authors, after studying 45 sexual offenders' spatial activity, found support for the 'domocentricity' theory, as well as the Marauder and Circle-and-Range hypotheses, while the Commuter model found no support. This suggests that offenders range out from a central point; their homes. This concentration of their offenses seems to offer support for the 'hot spot' theory. If offenders tend to reside in patterns other than purely random manners, then the possibility of non-random offense patterns would mean overall crime rates would be greater in and around their spatial range.


This report is a compilation of a research study conducted to improve understanding of use and security in New York's Central Park. Notable findings include: the northern end of the park is perceived to be the most unsafe; crime within the park is noticeably lower than in surrounding neighborhoods; there are relatively few police assigned to the expanse of the Park; crime in the Park is perceived to be worse than it is; community policing has been highly effective (including assigning radios to vendors, and Interwatch radios to runners). Recommendations are broad and specific, yet pertain primarily to policing, user awareness and technologically oriented means for crime detection, with some crime deterrence. Although
terrain and vegetation are mentioned as significant influences on perceptions of safety and actual crime, recommendations are few for dealing with these elements. Most notably, undergrowth and dead trees were cited for removal, and sight lines were recommended to be kept clear.


A series of excellent articles on reducing crime and vandalism by improving design and management of the environment in order to reduce opportunities for offending. This is a 'situational' approach to crime prevention and includes discussions of lock technology, surveillance, siting, and publicity campaigns.


This highly readable book covers a variety of user groups and site design issues in housing developments. Chapter 13, Security and Vandalism, deals exclusively with crime in such developments, providing a rare variety of useful sketches and photographs to illustrate the text. Design guidelines extensively reference past research on the crime and housing and themselves offer suggestions which appear to the reader as simply yet valuable. Included are major subject headings are Penetrability, Territoriality, Opportunities for Surveillance, Ambiguity, Resident Conflicts, Vandalism, and Management.


This article describes efforts of the National Capitol Planning Commission and other federal agencies in Washington D.C. to improve safety after September 11, 2001. It emphasizes the balance between security and good design. The article suggests that vehicular standoff perimeters are the most conspicuous aspect of security, but limited urban space creates an environment where design review, aesthetics, and a constructive decision-making process become increasingly important.


Written by the then director of the National Crime Prevention Institute, this audience-specific article gives a quick introduction to the Crime Prevention Through Environmental Design (CPTED) concept. It discusses the principles of CPTED and explains via easily legible plan drawings examples of good and bad design.


This work offers "no blockbusting theory" on crime and the environment, but it does deal with spatial elements of crime patterns. The book repeatedly examines the theme of "spatial inequalities in patterns." The author's primary emphasis is upon offenses against persons and their property.


The authors, two of whom are well known for their work with active and former offenders, here brief the reader on their findings comparing responses by active criminals and a non-criminal control group. The willingness to offend findings are important and not altogether expected, but most importantly they point out that "when studying perceptual deterrence in relation to serious offenses such as residential burglary, it is important to include real criminals."


“The authors estimate the relationship between trees and three crime aggregates (all crime, violent crime, and property crime) and two individual crimes (burglary and vandalism) in Portland, Oregon. During the study period (2005-2007), 431 crimes were reported at the 2,813 single-family homes in our sample. In general, the authors find that trees in the public right of way are associated with lower crime rates. The relationship between crime and trees on a house’s lot is mixed. Smaller, view-obstructing trees are associated with increased crime, whereas larger trees are associated with reduced crime. The authors speculate that trees may reduce crime by signaling to potential criminals that a house is better cared for and, therefore, subject to more effective authority than a comparable house with fewer trees.”


This two-page article serves to introduce readers of this magazine (security managers) to the origination and development of CPTED, and how they may incorporate it into their businesses. While it is neither empirical nor innovative, it does offer a quality, albeit very brief, discussion of the topic.


This is the fourth of a four volume series of which this is the most relevant to the topic at hand. The studies contained in this volume seek to explain the criminal justice system's operation regarding robbery. Underlying this purpose was the goal of understanding the system's relevance to the problems of controlling and preventing robbery.


"This study has primarily been concerned with describing the patterns of robbery in a single American city--Oakland, California--and the response of the criminal justice agencies in that city to the crime. It is an exploratory study designed to produce the kind of detailed, integrated information necessary for serious thinking and planning about the subject....The findings of the study do...bring to light some important things that have been unknown or little understood (pp. 3-4)."


Not an empirical study, this paper offers a discussion of research on routine activities theory. Specifically, it addresses changes in the urban fabric and how those evolving relationships affect crime. The author focuses on streets and their impact on lifestyles and how on contact between offenders and the public, referring to these meetings as "systematic accidents". He also introduces the term "sociocirculatory system", a reference to the latter impact of streets and vehicles on society, and especially the lack of regular neighborhood contact and the familiarity with people and place that results. Several excellent examples are given where these changes have occurred. The "facility" is the social structure which he suggests is the outcome. Examples include industrial parks, mini-malls, and so-called smart office buildings. In the long term the author suggests that the switch in urban structure means "the facility would become the main organizational tool for crime prevention (p. 926)." Finally, he offers the designer as one of the most important emerging preventers of crime as the "physical design and kinetic management" of urban landscapes decides more and more how and how often criminal and target meet.


"This article examines fear of crime in relation to exterior site features...The authors propose and test a theoretical model that posits that places that afford offenders refuge, and victims limited prospect and escape, will be seen as unsafe...The findings confirmed that fear of crime was highest in areas with refuge for potential offenders and low prospect and escape for potential victims."


This manual describes the concept of 'environmental security', a comprehensive planning process for analyzing and understanding neighborhood crime problems. The manual emphasizes a preventative orientation to crime, utilizing physically and socially 'reinforcing' solutions.


An extensive study by several of the leaders in elderly/crime studies. "This study examined crime and fear of crime among the elderly residing in urban areas in regard to its effect upon their leisure and use of public recreation and park services. The study also sought techniques useful in minimizing such crime and fear of crime. Fear of crime was found to be pervasive among the population surveyed and victims were particularly fearful. Nine percent of all those surveyed reported being the victim of crime during the last year." Approximately 150 pgs.


This article discusses various implications/causes of park non-use, including personal safety. Causes of non-use presented include: Social Restraints, Access, Site Characteristics and Personal Safety. The author discusses implications and offers possible solutions to the problems discussed. This work may be of more use for gaining a perspective on how the field has progressed than for realizing new ideas.


(This) paper assesses the validity of two perspectives on the effect of the physical design of buildings, sites, and neighborhoods on crime—the defensible space approach and the opportunity approach. Study examined differences in physical characteristics and various dimensions of informal social control within and among three pairs of neighborhoods matched on racial composition and economic status but with distinctly different crime levels. Study results lend far more support to opportunity model of crime in residential areas than to the defensible space model.*


The author found that high visual preference was found for trail hikers where scenes in photos showed a trail winding out of view, but only when dense vegetation obscured the receding trail. This lack of information is termed 'mystery'. [While mystery may prove pleasing in some safe settings (such as remote Cranberry Glades, WV, as in this study), it may make people feel unsafe in more urban settings.


"This monograph reviews the environments of criminogenesis from a broad ecological perspective, emphasizing both human and physical phenomena. Human environments are examined from both the macro- and microlevel perspectives...At the micro-, or intraurban, scale a number of recent studies are examined, their strengths and weaknesses underlined, and their essential findings synthesized."**


"This research examines the relationship between the perception and fear of crime on the one hand and neighborhood cohesion, social activity and affect for the community on the other...The hypotheses that the perception of increased crime and the fear of crime would be inversely related to neighborhood cohesion and social activity were not supported. But as hypothesized, the fear of crime was negatively related to affect for the community."


"This book is the latest in a series called Topics in Applied Geography. (It) provides the reader with a superficial overview of the field, some useful examples for teachers; presents detailed description of spatial patterns, distributions, and correlates and explores ways in which geographical research can widen its horizons and hopefully reorder its priorities, especially with regard to policy formulation."


“...This chapter considers...a spatial database and geographic information system (GIS) approach to the storage, management and manipulation of crime-related community data.”


This paper discusses research on offender decision making and presents results from the 1982 and 1984 British Crime Surveys (BCS). The discussion of previous research is effective, particularly in pointing out difficulties posed by various methods. The BCS results presented focus on burglary. With over 11,000 homes surveyed in the BCS the author's findings bear consideration. He writes that crime surveys "offer a useful corrective to some of the distortions in conventional studies of target selection. The main points to emerge about burglars' choice of targets are as follows: proximity is a key factor determining choice of target for most burglars; burglars select poor homes no less than those with average incomes, but affluent homes are more at risk than others; and accessibility factors are taken in account-homes frequently left empty and those with rear access are more vulnerable, for example; and as many as half of all burglaries end in failure (p. 366)."


"In general, pleasure increases as tree density increases and understory density decreases...arousal increases with increasing understory vegetation density...and people prefer parks that are both pleasant and arousing. Results suggest that considerable control over affect can be exercised through manipulation of a park's physical characteristics." The implications of these findings for safety are reflected in the studies that have investigated vegetation from the safety standpoint. Those results of those works converge with those of these authors in that lower vegetation is perceived negatively and arousal increases with increased understory. Heightened feelings of awareness from a perception of lowered safety may account for this study's findings on increased arousal.


This book delves into the life and definition of so-called 'career criminals'. In a unique format it consists of the recorded and recompiled comments of such an individual, in this case a thief, whose trust the author had earned during contact within a correctional facility. Although dated, the thief's discourses are detailed and comprehensive.


Environmental crime control adheres to the classical principles of prevention of crime before it occurs, and certainty of consequence for behavior, but shifts emphasis from punishment and the individual offender to reinforcement and the environment.


Three articles in this issue are most noteworthy: Jeffery's *Criminal behavior and the physical environment: A perspective*, Duffala's *Convenience stores, armed robbery, and physical environmental features*, and Reppetto's *Crime prevention through environmental policy: A critique*.


The purpose of this guide is to inform local police departments about the prevention and response to bicycle theft. The section titled “Where Bicycle Theft Occurs” cites university campuses and public transportation hubs as common locations for such crimes to occur.


This brief paper was purposed to study interaction between the sexes as "(c)ollege undergraduates were asked to construct models of houses that would promote privacy, security, or social interaction for occupants." While interesting for its own sake, the study likewise touches lightly upon security factors as perceived by the study population.


This work consists of 1) a brief Introduction, 2) a section on General Theory and Applications, and 3) a section on Urban Design and Crime, yielding a total of twenty-one pages in all. The majority of works cited pertain to urban planning and architecture, specifically housing. While many of the pieces listed in this work may also be found in this bibliography, there are a great many which are not listed herein.


Korblum, W., & Williams, T. (1983). *New Yorkers and Central Park: A report to the Central Park Conservancy*. New York: Sociology Department, Graduate Center, CUNY.


"One hundred residents of Chicago's Robert Taylor Homes rated computer simulations of different landscape treatments of an outdoor space in terms of preference and safety. The simulations of the space varied in the number of trees, tree arrangement, subspaces created by the trees, and level of landscape maintenance. Results indicate that-contrary to views of the police-outdoor residential spaces with more trees are seen as significantly more attractive, more safe, and more likely to be used than similar spaces without trees. Implications for design and policy are discussed."


This article describes the design of the Los Angeles police department’s new Police Administration Building. The project was met with substantial criticism due to conflict over the site. Landscape Architects from the Melendrez design company were able to strike a balance between safety (the site is protected from car bombs and other perceived threats) as well as the community’s need for open space. Despite maintenance problems, the design is considered a success by the author.


The authors interviewed 24 victims of ‘muggings’, having them relive their experiences, their feelings, and any meanings they attached to the incident. The article was written at a time when this nation was just beginning to pay attention to this form of personal attack. Hence, much of what it has to offer is victim response, rather than empirical data or quantifiable data. This may be attributable to the sociological background of the researchers. None-the-less, the reader can expect to find insights into the process of muggings (including victim response), but more so into the changed psyche of the victim, who, the authors say, begins to see the city as "a jungle". Also of considerable interest is the discussion of victims' feelings of safety in familiar environments. The authors suggest that "ecological sentiments may act as blinders" to changes in safety. That is, they failed to accept or recognize how their environment was changing over the years, or even over a matter of minutes in the case of a mugging itself.


"Results of this research prove that the integration of geospatial modeling and advanced statistical analyses is of central importance to ensure the explanation of up to 97% of Part I neighborhood crime. In light of their effects on crime, vegetation settings are found to have a positive relationship with property crime, while a negative relationship with most violent crime. More high view-blocking vegetation settings, especially in public space, are significantly correlated with more violent crime but less property crime. In summary, the relationships between vegetation settings and crime are more complex than that were reported in the literature. How vegetation settings affect neighborhood safety is not only a matter of demographic and socioeconomic status of people, planning and management of urban space, and the construction of landscape settings, but also determined by the mechanisms, through which different types of crime occur in varied social and physical context. Therefore, for various categories of crime, the impacts of landscape settings could be totally different."


"This paper reports two studies of recognition memory performance in groups of juvenile residential burglars. Memory performance of the burglars was compared in Experiment 1 with police officers and a group of adult householders. In Experiment 2 a second group of juvenile burglars was compared with a group of juvenile offenders who had no experience of housebreaking. All groups were asked first to identify houses in photographs that would be attractive or otherwise to burglars. Subsequently, subjects were given a surprise recognition test where, in some photographs, physical features of houses was significantly better members of the law-abiding public. In Experiment 2 the juvenile burglars' recognition memory performance was significantly better than the other offenders. These results are interpreted in terms of the burglary subjects possessing a level of expertise associated with their experience of offending."


To test Newman's 'defensible space' theory incarcerated burglars were interviewed as they rated photos taken of residences on "vulnerability". "As the theory predicts, easily surveillable houses were rated as the least vulnerable targets. Contrary to the theory, evidence of territorial concern had no effect...or actually increased vulnerability.


This extensive report remains one of the most detailed examinations of crime in recreation areas to date. Sixteen cities were studied out of the 49 initially contacted. Three categories of parks (sub-neighborhood, neighborhood, community) were examined in each of the cities. City officials and park patrons were queried, and official statistics were compiled. Among the goals of the study were determination of: 1) the primary crime problem(s) facing the parks, 2) which parks were experiencing crime problems, 3) the sources of the problems, and 4) the amounts and types of crimes occurring. Also examined were attitudes of the public. It is worth noting that several of the report's general findings mirror our own findings some twenty-three years later. [Persons wishing to obtain a copy of the report may be forced to contact the library at HUD]


Mambretti, I. (2010). *Urban parks between safety and aesthetics: Exploring urban green space using visualisation and conjoint analysis methods.* Zurich, Switzerland: Verlag der Fachvereine Hochschulverlag AG an der ETH.


Martin, S. (1994, August). Ripped off: In the time it takes you to read this headline, this man can steal your bike. *Bicycling, 41*-45.

This article, which discusses means for theft of bicycles with bike thieves, reports briefly on the occurrence of so-called "bike-jackings" in urban recreation areas.


This article describes the application of CPTED principles to the Joint Interagency Task Force East (JIATF) site in Florida. The facility acts as an intelligence center for the U.S. military’s drug interdiction efforts. While security was not an initial concern when the facility was built in the late 1950’s, a group of students from the University of Florida and professionals were hired to incorporate unassuming countermeasures into the site’s current design. Specifically, standoff requirements for vehicles were of primary concern. Natural plants and limestone boulders were used not only as barriers, but to blend the site visually into the surrounding area. Electronic surveillance, card readers, turnstiles, and other barriers were also implemented. The site was successfully locked down during the September 11 attacks.


The author argues that by oversimplifying the nature of crime and the qualities of defensible space, Newman has failed to consider the possibilities for contradictions within the key elements of the theory that might also threaten security.*


An excellent short monograph assessing the use of surveillance to reduce different types of crime. The authors argue that 'casual' surveillance by the public is generally less effective than surveillance by residents and employees of an environment.*


This paper reports on a pilot study which was intended to find out how and in what ways a city park is important, i.e., supportive to its elderly users and to determine why other elderly persons who live in proximity to the park do not use it."


"The notion that crime can be prevented through environmental design is a recent and promising idea emerging from the fields of architecture and urban planning. However, despite intriguing correlation's between crime rates and features of building design, we understand little about the social processes which induce residents to intervene to stop crimes and disorderly behavior in the spaces around them. This article investigates the conditions under which residents of an American inner-city housing project act and fail to act to defend both architecturally defensible and undefensible spaces. Because of the fragmented social fabric, even architecturally defensible spaces here are undefended."**


The authors report an ethnographic study of 15 street-level heroin dealers done over 3 months. Findings relevant to CPTED include that since World War II heroin sales have moved increasingly away from the fixed locations of the "Dope-Pad System" towards "runners" and "crews" dealing on the street. He further found that "the runner system is designed to market heroin in public places, most typically either at the curbside of public roads or other open locales such as areas in front of shops and stores, playgrounds, parks, and schoolyards (p. 648)." "Stations", or selling positions, were typically on sidewalks or just off of roadways. Planned escapes were found in crews, as were the need for "guns" (i.e., armed crew guards) to be able to "observe and monitor" the surroundings. Further, the surrounding environment was regularly used for caching a stash of drugs and/or money. This latter tactic was also uncovered by Michael and Hull (1994).


Miller, E. S. (1981). *Bryant Park: A comprehensive evaluation of its image and use with implications for urban open space design*. New York: City University of New York, Center for Human Environments.


Molumby, T. (unknown). Evaluation of the effect of physical design changes on criminal behavior (Doctoral dissertation), St. Ambrose University.


The author of this early work employs spatial analysis to study location of crimes. The study lacks a theoretical basis for conclusions, or hypotheses to test spatial theory. Causes of patterns in the study may reflect some reading into the findings as far as causes of patterns are concerned.


The author "monitored the use of two central city parks--one in Boston, one in Hartford--around the clock during the summer of 1978, recording the social characteristics and behaviors of the park users." The result is a unique look into the patterns of use in two urban parks. Included within the study were figures on deviant behavior (e.g., selling marijuana), problem behaviors (e.g., fighting, begging), and other actions which were either unlawful or indicated possible criminal characteristics. The findings suggested "that people's use of public parks can be influenced by the park's landscape." Specific design elements are discussed with regard to their impact on users (e.g., vegetation, pathways, edge effects).


The authors describe physical environment cues that may affect the public's fear of crime. In the process they developed a theory regarding the relationship between these cues, fear, and consequent reactions. The study examined the physical environment of university campuses. Cues that heightened fear were: "poor prospect for the passerby due to inadequate lighting, blocked escape for the passerby, and concealment for the offender". Responses to cues and fear were also recorded. The study's results are consistent with recent findings that suggest that informed design of micro-level physical settings and their features may be an effective means for deterring criminals. Consequently, the authors suggest that it may also be effective at reducing fear. As this and other studies point out, although fear may not be an adequate predictor of crime, it has salient negative consequences that effect people even in the absence of experienced crime. Article includes photographs and site plans of the study areas.


This study takes a different slant on examining the geography of crime. It differentiates between macro and micro-level site characteristics, examining how the latter may contribute to concentrated areas of crime, or 'hot spots'. Although this article does not offer the first investigation of hot spots, it does provide the most thorough discussion to date. Prospect, concealment and boundedness were the proximate cues studied, with female college students and campus police serving as subjects. Fear was also examined on the same levels. "Hot spots of fear and crime converged at the micro level. Both fear and crime increased in areas characterized by low prospect, high concealment, and high boundedness." Design measures are discussed regarding micro level deterrence (e.g., lighting, vegetation maintenance, cameras).


The original publication of this book in 1972 changed the nature of the crime prevention and environmental design field. The book details and describes the 'defensible space' theory, and includes extensive discussion of crime and the physical form of housing based on crime data analysis from New York City public housing.


This handbook examines how different social, physical, managerial, and economic factors combine to produce secure housing. Other chapters cover the evolution of multi-family housing, design guidelines for buildings, site planning guidelines, two prototypical designs, and discussions regarding security hardware.


This brief paper offers support for the authors' predictions concerning the relationship between lighting and aggression. In a somewhat unusual test, subjects' willingness to punish fellow participants via an electrical shock system (which offered varying magnitudes of current) was monitored as contact with the 'victim' was decreased via lighting and physical proximity. Shocks tended to be more powerful and lasted longer when rooms were more dimly lit. These findings, if found to be sound, could expand the theoretical support to the age old belief that lit areas are safer.


With data based on over 400 subject interviews, the authors developed and tested both a procedure and an instrument to assess "crime- and fear-related features" of the urban residential settings. Various cues were examined (i.e., symbols of social and physical disorder, territorial functioning, and architectural 'defensible space' features) while, theoretically, the 'disorder' thesis, which suggests that residents' confidence in their neighborhood will be negatively impacted by physical incivilities, was tested, with support being found for it. Their findings are in agreement with many others. The authors point out that an important next step is to isolate "exactly what aspects of the environment most affect resident perceptions and what the nature of those perceptions are."


Because it is committed against physical objects and because physical design and setting play an important role, vandalism is the ultimate 'environmental' crime. Often misunderstood by designers, planners, facility managers, and administrators, vandalism can be more effectively controlled through an understanding of the patterns and environmental context in which it occurs. Social situations conducive to vandalism are discussed, e.g., unstable neighborhoods, insensitive school administrators and teachers, and workplaces with rapid staff turnover. S. Cohen's typology of vandalism and methods for preventing or controlling it ('Campaigning against vandalism.' In *Vandalism*, edited by C. Ward. London: Architectural Press, 1973) are described.*


This study chronicles the introduction of crime deterrence measures in two parking areas. Recognizing that theft of autos and thefts from autos require different preventative measures, the author examined changes
in each type of crime. The author suggests that adequate surveillance, either formal or informal, is the most important measure which can be taken in attempting to reduce offenses. Design solutions are offered for proactive and reactive attempts to secure parking areas, including parking structures.


(The) author investigates the association of social and environmental variables and criminal activity by comparing geographical areas of a country or communities and neighborhoods within a city. He approaches the subject in terms of considering the quality of life in communities undergoing change. Identifies a number of critical criminogenic factors: (1) location of offenders relative to their victims, (2) attractiveness of communities to offenders, (3) offender awareness of criminal opportunities, (4) offender case of entry and egress of communities to be victimized, (5) mixed land use, (6) the location of certain legal and illegal businesses.


This study included 299 women from metropolitan cities around the United States. The authors identified a pair of precautionary actions used by women: "avoiding dangerous situations and managing risks in the face of possible danger." Fear, perceived physical competence, race and education were found to be strong predictors of avoidance. Proximal physical cues which indicate danger or decay (e.g., vandalism) were found to prompt risk-management more so than do general crime rates. This ties in with micro-environment findings and 'hot spot' research which suggest that individuals react to a given situation rather than to regional or community crime patterns.


This piece broke new ground as it exploring the following three objectives: "1) to determine whether judgments of personal safety in urban recreation sites show sufficient reliability to be usefully studied, 2) to use such judgments to identify park design features affecting perception of security in urban parks, and 3) to identify the relations between visibility, perceived security, and perceived attractiveness of urban parks." Findings showed "...high security is associated with open areas with long view distances and with signs of development and nearby populated areas. On the other hand, high scenic quality depends on the presence of natural vegetation....and is lowered by manmade features." Unfortunately, little similar research has been done thus far to further explore these important findings.


This study finds support for the ecological theory that when offenders, targets and a lack of guardians converge a criminal event results. Over 300,000 calls to police in Minneapolis were compared with addresses to which responses were made. It was found that some 50% of the calls came from only 3% of the places. These locations, termed 'hot spots', have been dealt with in a variety of manners, some of which the authors discuss. They suggest that, although eradication of crime settings (e.g., crack houses) and of routine activities of criminals (e.g., bars) will not remove crime, regulating the "routine activities of places may be regulated far more easily than the routine activities of persons."


This article compares traditional security features such as planters, bollards, and turnstiles with electronic surveillance methods such as Charged Coupled Discharge cameras, thermal imaging, and digital image fusion (a combination of night-vision and thermal imaging). The article suggests that biometrics constitute the highest level of security because they are based on unique physiological or behavioral characteristics. For example, the U.S. Department of Defense is researching mathematical patterns which identify people by the way they walk.


This article examines a variety of crimes on public transportation. It makes the distinction between crimes committed due to overcrowding and those which occur under lack of supervision. It postulates that crime can be “designed out” of public transportation.


"This article examines the self-reported target techniques of 61 sexual offenders incarcerated in a maximum custody prison. Respondents were interviewed using a methodology employing other convicted felons as interviewers. The data lend support for a rational choice perspective revealing predatory rapists as decision makers since they largely attack females whom they perceive as vulnerable."** Although the article does not deal specifically with influence of the physical environment, quotes from rapists do describe the use of settings. The author discusses the use of manipulation as opposed to circumstance in rapes occurring in opportune situations. The split between the two was almost 50/50, and the interpretation is that vulnerability, whether signaled by victim behavior or by physical isolation, is of paramount importance to rapists.


"This dissertation is an investigation of how physical design characteristics affect microspatial patterns of violent crime, especially rape in urban public places. A review of crime specific literature, spatial literature on crime and crime prevention literature finds that over a third of all violent crime occurs in urban public places, but little is known about the precise location or characteristics of the crime sites, or of conclusive effects of the physical environment on crime prevention.

Police incident reports were used to obtain data on 40 variables for 590 cases of rape occurring in Seattle during 1981. Data analysis of 20 variables provided evidence of external validity of the Seattle sample when compared with the results of several other studies. The remaining variables describe the spatial distribution of rape in Seattle. The sites of 65 of these cases, which occurred in urban public places, were inventoried using a checklist of 42 environmental variables derived in part from crime prevention literature and from an earlier pilot study. A series of linear discriminant analyses of this data showed that a set of six environmental variables affecting the offender's control over the victim, had statistical significance in discriminating between the sites of attempted and completed rape. These variables and their associated weights, in linear equation form, comprise a model for predicting precisely where rapes are likely to occur in urban public places. This model is refined to facilitate calculating the probability that a completed rape will occur for a given urban public place. Five applications of the model to urban public places in which rapes had occurred, led to successful prediction of the precise location of four of the actual rape sites - an
outcome shown to be highly unlikely the result of chance alone. Applications of the findings and of the model for urban planning and urban design, are discussed in terms of how to make existing environments safer, or to design new environments to be safe. The appendices contain detailed frequency tables on all 82 of the variables surveyed.***


This study in the Republic of Ireland compared perceptions of burglars and householders using "free responding" to a simulated residential setting (using slides and map), effectively allowing subjects to "move through the simulated environment". Introduced is the concept of "vulnerability". Significant differences were found between the two subject groups, particularly with respect to intra-group response homogeneity, awareness of vulnerabilities, and 'route' of exploration taken, the burglars moving in a more systematic manner.


This study utilized a model that included the factors mentioned in its title to investigate why some blocks have more incidents of crime, or higher fear levels, than do other blocks. "(Their) model explained significant portions of crimes of violence to persons (18%) and block fear (37%)...(and)...variation in individual-level fear."


This study attempts "...to understand some of the roles that the physical environment may play at the neighborhood level...The results disconfirm some broad-gauged theories about neighborhood-level physical impacts that have been proposed."


This handbook is an operational presentation of crime prevention through environmental design. (It) discusses methods of designing or redesigning buildings and neighborhoods to reduce crime and the fear of crime.


Describes an attempt to reduce crime and fear in a particular setting (Portland, OR) by reducing criminal opportunity while simultaneously fostering positive social interaction.* This report is lengthy and was not conclusive in its support of the theory in question. Rather, it recommended further testing.


This book is intended for 'all those who earn a living by modifying and maintaining the environment.' The book is more than just a design guide for architects, planners, managers, and engineers; its collected articles constitute one of the best surveys of the physical, social, criminological, and political aspects of vandalism. Contributions are organized in four parts: the 'social background', the 'designer's responsibility', 'vandals with power', and 'coping with vandalism.' *


The author investigates how people perceive cues and signs which alert them to danger. Night, or darkness, novelty of the situation, and being alone (vs others who might offer assistance being present) were examined. They were found not to be frightening because of what they are, but because of what they represent. Thus, "they are signs of frightening things". Interestingly, presence of others can have distinctly different effects. The author found that depending upon who the 'others' are, their presence can have a reassuring or an alarming affect. This work warrants further investigation by those interested in the perceptions and reactions of the public, particularly women.


This article, despite its title, does not involve nature in the sense of the out-of-doors, but rather settings natural to shoplifters (e.g., retail stores). The authors conducted walking interviews with 17 expert and 17 novice shoplifters. As they walked through the establishments the offenders thought aloud, explaining their analysis and strategy development as they went. The study found that expert shoplifters "were deterred by strategic difficulties, e.g., size of the item. The experts, unlike the novices, viewed store personnel and security devices (intentional deterrents) as overcomeable obstacles. The latter group decided to abort shoplifting in the face of such deterrents. These findings are important in their correlation with studies such as those on burglary which compare perceptions of burglars of varying degrees of experience. The reader is lead to conclude that deterrents of differing kind and degree affect the range of offenders in differing manners. Thus a layering of defenses or deterrents is necessary to have the greatest success.


This article describes a program called Summer Night Lights in Los Angeles. The program involved youth-oriented activities during the evening in eight neighborhood parks and seems to have successfully reduced violent crime in those areas.


This study looked at perceptions of crime as it affected behavior, and tested Garofalo's fear of crime model. Fear was examined through on-site interviews in urban and suburban parks. "Study results clearly demonstrated differences in safety-related perceptions and behavior between males and females."


Chapter 3, Street People, discusses the people who work the streets of cities. Included along with vendors and postal delivery personnel are the lawless element. The author discusses these persons; the prostitute, the drug dealer, and the mugger. The discussions stem from field observation and time lapse analysis of movements and patterns on the streets. He briefly discusses some techniques of offenders such as pickpockets and others who work public outdoor places. Important points are made concerning the reaction of criminal communities to police presence and understanding differences between dangerous people and environments, and ones which are simply undesirable.


This study is concerned with the extent to which vandalism is affected by building design and layout. Results from a survey of London municipal housing estates provide limited support for Newman's 'defensible space' ideas and also show the relevance for vandalism of the densities at which children are accommodated on estates.*


In this chapter the author introduces the concept of "screens", a topic which has been for the most part overlooked. Tying into surveillance and concealment, Wood's screens are worth examining. He presents a typology of screens that includes function, mode, permeability, and range. Wood offers this perceptive observation: "the environment provides shelter for acts of deviance as a necessary consequence of its
ordinary ongoing struggle to maintain itself, precisely as the forest provides shade for the growth of photophobic plants which die or wither in the sunlight. The trees no more intend to provide the shade immediately invaded by the mosses and ferns, liverworts and wildflowers, than the farmer does who in erecting his barn provides a place behind which little children can smoke. But the trees and the farmer do not intend to do so either. It is a necessary attendant consequence.” (93; emphasis his)


"Criminologists long have recognized the importance of field studies of active offenders. Nevertheless, the vast majority of them have shied away from researching criminals 'in the wild' in the belief that doing so is impractical. This article, based on the authors' fieldwork with 105 currently active residential burglars, challenges that assumption. Specifically, it describes how the authors went about finding these offenders and obtaining their cooperation. Further, it considers the difficulties involved in maintaining an on-going field relationship with those who lead chaotic lives. And lastly, the article outlines the characteristics of the sample, noting important ways in which it differs from one collected through criminal justice channels."

(author's abstract)


This seminal work by two of the most experienced researchers of offenders' perceptions uses the photograph and interview method to "determine what features of the immediate environment are important to juvenile house burglars in their selection of targets." Building on similar studies, significant differences were again found between criminals and the non-criminal control group. Burglars, being consistent as a group and also consistent with adult burglars in other studies, found "the presence of cover (surveillance), cars (occupancy), and dogs or alarms...as affecting their choices of houses" to offend. However, locks appeared to be "influential in deciding how to break in, but not in whether or not to do so."


---


** indicates a quotation from the author(s) of the cited work.

Note: this bibliography is formatted according to the *Publication Manual of the American Psychological Association, 6th Edition.* Errors may be brought to the attention of the authors for correction.
About the Authors

Sean E. Michael, PhD

Sean is Professor and Department Head of Landscape Architecture and Environmental Planning at Utah State University. He holds a PhD in wildland recreation at Virginia Tech, with his research addressing impacts from and deterrence of crime in urban parks, stressing offender behavior and spatial preferences coupled with multi-disciplinary strategies. A security design consultant, he publishes and speaks to local, state and international audiences on the topic. He is author of the first CPTED training program for landscape architects, entitled “Security Design: Strategy, Integration and Liability (see www.asla.org), and maintains a Web site on CPTED (www.thecptedpage.wsu.edu). His recent efforts have included work on the security component of the draft Sustainable Sites Initiative report, and a summer distance-delivered course entitled Security Design through Washington State University.

Gregory Saville, MES, MCIP

Greg is a former police officer and is currently an urban planner specializing in CPTED and Safe Growth methods. He co-founded the International CPTED Association, and in the 1990s was a partner in Canada's first consulting firm to specialize in CPTED. He currently is co-owner of AlterNation, an international consulting firm dedicated to safer places and helping change agents transform their world for the better. Greg lives in the Olympic Peninsula of Washington State, is a former faculty member at Florida State University and at the University of New Haven. In 2007, he created the SafeGrowth program for neighborhood safety and launched the model at the UN Habitat program in Santiago, Chile, as well as SafeGrowth training with the New York based Local Initiatives Support Corporation in cities across the U.S.

Joel W. Warren

Joel first became interested in environmental criminology as a student in an introduction to GIS course. One of his favorite undergraduate projects was creating a map of possible drug-smuggling routes in Arizona's public lands based on environmental factors. Joel graduated from Brigham Young University with a BA in Geography; emphasis in Urban/Environmental Planning. As a graduate student at Utah State University in the Landscape Architecture and Environmental Planning program his thesis will examine spatial relationships between burglary patterns and public transportation. He believes that the careful study, planning, and design of urban environments can help create safer, more socially successful neighborhoods.