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Situational Crime Prevention

Crime Environments

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Editorial

This edition contains ten papers presented at the Fourth International Seminar on Environmental Criminology and Crime Analysis. This took place in Cambridge, England, in July 1995. The International Seminar is now an annual event; its purpose is to provide an informal forum for a network of researchers concerned with analysis of the environments in which offending takes place. The Cambridge seminar was the first to take place outside North America, the three previous being hosted by the University of Montreal (1992), University of Miami (1993) and Rutgers University (1994).

Environmental criminology has now achieved recognition as a legitimate sub-discipline. The value of the routine activities approach (cf. Felson, 1994; Brantingham and Brantingham, 1993) and of rational choice theory (cf. Cornish and Clarke, 1986) is now widely accepted, as is the practical utility of situational prevention (cf. Clarke, 1992). However, many criminologists were for a period of some years fairly sceptical about its value, regarding it initially as a trivial diversion from the proper object of study – criminal motivation. There are various reasons for this neglect. One is to be found in changes in the level and nature of crime: the picture drawn by Cyril Burt, for example, of the young delinquent fifty years ago – a neurotic, inadequate social isolate engaged in an activity that was genuinely deviant – seems increasingly less accurate as a representation of offenders in the 1990s, where offending is commonplace and often highly socially structured. Another – related – reason is the dominance of the so-called 'medical model' of criminality prevention throughout the early part of the post-war period: a perspective which saw offending as deviant or abnormal inevitably identified the offender as the appropriate point of intervention. Manipulating the environment in which offending occurred was seen as pointless; closing an opportunity for crime would not eliminate it but would simply displace it – like pressing on a globule of mercury. Displacement is, of course, a concept central to environmental criminology. Various studies have now established beyond doubt that blocking opportunities for crime rarely results in total displacement. It now seems naive to argue that situational prevention must necessarily redistribute crime over place and time. Certainly, this happens in some circumstances; sometimes, too, environmental prevention can have
perverse consequences, redirecting offenders to more socially harmful forms of crime. Equally, however, there are well-documented examples of prevention which have proved largely or totally free of displacement. It is this realization – coupled with increasing pessimism about many alternative strategies for tackling crime – which has led to a growing recognition of the contribution which environmental criminology can make. Motivational issues remain central to criminology, of course; but there is now much greater recognition of the many and subtle ways in which environments shape and constrain this motivation.

The papers in this edition exemplify the range and diversity of current environmental criminology. Pat and Paul Brantingham's paper develops concepts and methods for identifying and understanding 'crime hot spots'. Central to their analysis is the idea that some crime is opportunistic – where offenders respond to opportunities which present themselves – and some crime involves a more active search by offenders for targets. Thus some urban hot spots are 'crime generators', rich in presented opportunities, and others are 'crime attractors', places where offenders seek out victims in a planned and deliberate way. The scope for displacement-free prevention is greater in the former than in the latter.

Nick Tilley's paper focuses on surveillance as a form of social control, examining how different social contexts yield variations in forms of surveillance. Pre-modern societies, characterized by small immobile communities, facilitated intensive mutual surveillance, which was tightly linked to informal social control. Surveillance in urban societies sees greater reliance on surveillance as part of formal social controls, and this tendency is amplified in modern metropolitan societies, where mobility and communications have effectively dissolved place-based local communities. Tilley illustrates his analysis with case studies of neighbourhood watch and closed circuit television.

Richard Titus argues that routine activity theory could fruitfully turn its attentions to the victims of crime, given that their routine activities are as important as those of offenders in bringing the two groups together in space and time. He suggests that the wish to avoid the appearance of 'victim blaming' may have deterred researchers from opening up this area of work and draws attention to some of the positive benefits to victims which could flow from work in this area.

Paul Cromwell and his colleagues use routine activity concepts in their paper to analyze the impact on crime of a natural disaster. When Hurricane Andrew hit Florida in 1992, it paralyzed all formal systems of
social control in some towns for some weeks. Against all expectations, this absence of 'capable guardians', coupled with an influx of people whom one might reasonably expect to be 'motivated offenders', seems not to have prompted a surge in crime. The explanation offered by the paper is that informal social control expanded to fill the vacuum, consistent with Donald Black's theory of the behaviour of law that 'law varies inversely with other social control'.

Mark Mattson and George Rengert report the results of a study examining the linkages between perception of danger and judgements about distance. Surveying residents of Philadelphia, they demonstrate that people consistently overestimate the distance of routes which they judge to be relatively risky. The authors explore the consequences of this for strategies for reducing fear of crime and maximizing use of civic amenities.

René Hesseling provides a detailed examination of a programme to reduce vehicle crime in Rotterdam. Using police records, crime statistics and offender interviews, Hesseling established that the programme succeeded in making car crime more difficult to commit. There was evidence of a reduction in thefts from cars/motor vehicles in the targeted area; no spatial displacement was identified, though displacement to other types of offence was not ruled out.

Alex Hirschfield and colleagues present preliminary findings from a study of crime and social disadvantage in Merseyside in the north of England. Using mapping techniques they have examined relations between land use, social conditions and crime. Crime hot spots were identified in or contiguous to areas of social deprivation, social disorganization and low guardianship, consistent with routine activity theory. Repeat victimization was especially likely in these crime hot spots.

Trevor Bennett's paper presents the results of research undertaken for a domestic burglary task force in Cambridge, England. He used mapping techniques to identify burglary hotspots, supplementing this with interviews with, and other information about, known burglars. The research successfully identified hot spots; and the offender interviews go some way to explaining why these areas were attractive. The offenders also reported returning to targets that they had already burgled, as well as acting on tips from other burglars about promising targets.

Victor Jammers' paper presents two case studies of crime analysis in practice, drawing on the work of the Commercial Robbery Task Force (CRTF) set up by the Dutch Ministry of Justice. The first is an assessment of the likely impact of extending shop opening hours; the CRTF analysis
predicted that this would not lead to increases in crime, but that it could
displace crime over time. The second was an examination of the crime
risks faced by taxi drivers. The two analyses conclude with a range of
preventive strategies.
Mangai Natarajan, Ron Clarke and Bruce Johnson explore the role of the
telephone in drug markets. Public telephones have for some time been
used to facilitate drug dealing, and the paper describes various strategies
which have been successful in the past in countering this. The advent of
mobile phones has allowed dealers to circumvent these strategies – and
'cloned' phones in particular allow dealers to escape the risks of phone-
tapping. The paper argues that effective preventive strategies can only
be developed if there is detailed understanding of the precise ways in
which offenders exploit new technologies.

Michael Hough
Jane Marshall

N.B. In view of the number and diversity of the theme-related articles, it
was decided to omit the Varia section.

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Criminality of place

Crime generators and crime attractors

Patricia Brantingham and Paul Brantingham\(^1\)

Crimes are created by the interactions of potential offenders with potential targets in settings that make doing the crime easy, safe and profitable (see, e.g., Clarke, 1992; Brantingham and Brantingham, 1993a and 1993b; Felson, 1994). Fear of crime is created by situations and settings that make people feel vulnerable to victimization (see, e.g., Fisher and Nasar, 1992a and 1992b; Nasar and Fisher, 1992 and 1993; Brantingham et al., 1995). The urban settings that create crime and fear are human constructions, the by-product of the environments we build to support the requirements of everyday life: homes and residential neighbourhoods; shops and offices; factories and warehouses; government buildings; parks and recreational sites; sports stadia and theatres; transport systems, bus stops, roadways and parking garages. The ways in which we assemble these large building blocks of routine activity into the urban backcloth can have enormous impact on our fear levels and on the quantities, types and timing of the crimes we suffer.

Although criminologists have argued this point in various ways for at least a hundred years (e.g., Ferri, 1896; Burgess, 1916; Shaw and McKay, 1942; Jeffery, 1971; Brantingham and Brantingham, 1993a and 1993b) it is only recently that large multi-purpose municipal data bases, in conjunction with police information systems, have begun to make it possible to actually explore how the juxtaposition of land uses and transport networks shapes the backcloth on which crime occurs. This paper attempts to set out some of the next steps in understanding the construction of the backcloth and its effects on crime. The model that will eventually emerge should provide us with a planning tool that will

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allow us to estimate the criminogenic and fear-generating potentials of different planning and development decisions in context in the way that traffic engineers can presently predict the potential of different land uses in generating car journeys. It will be based on a large-scale empirical analysis of crime data patterns of the sort that allowed Block et al. (1985) to estimate the victimization risks attached to hundreds of different occupations.

In such an undertaking it will also be important to remember that the sites, situations, or general socio-economic, demographic and media conditions that create fear may not necessarily relate to actual risks of victimization or patterns of crime. For example, it is well known that the elderly express high levels of fear of crime, but run low risks of actual victimization; teenagers and young adults generally express low levels of fear of crime, but run the highest risks of criminal victimization (Fattah, 1991). Note that places marked by darkness and isolation are generally feared as likely crime sites, but (with a few exceptions) tend to be relatively low-frequency crime locations (Brantingham et al., 1995). Introduction of higher levels of street lighting into high-fear locations appears in general to have little beneficial impact on crime levels (Atkins et al., 1991; Ramsay and Newton, 1991). Vandalism, litter and graffiti are known to make people feel uneasy, to raise their fears of crime in an area, but do not often constitute the territorial markers of actual crime hot spots (Ley and Cybriwsky, 1974; Skogan, 1988). The public view of 'crime' often turns out to be tied to the presence of noise, traffic, beggars, alcoholics and contact between groups of 'different' people as much as to criminal code events.

Crime may often be high in situations and sites where people feel safe and express little fear. This is predicted by Angel's (1968) target density model and by what is known about the environmental psychology of crime (Brantingham and Brantingham, 1993b). So, robberies are known to concentrate along busy shopping streets (Wilcox, 1973) where people generally express little fear. University crimes in general concentrate in high-activity areas such as the library or student union or dormitory laundromats where students say they feel safe (Brantingham et al., 1977; Brantingham et al., 1995). Car thefts and thefts from cars concentrate in and around parking lots where people feel their cars are safe (Poyner, 1992; Eck and Spellman, 1994; Fleming et al., 1994) or in exposed locations such as the street close to home where people feel their cars are safe (Clarke and Mayhew, 1994).

Both crime and fear may constitute problems at particular locations in space-time, of course. Such dual hot spots of crime and fear often occur
along the edges of 'entertainment' districts – 42nd Street in New York, or Granville Street in Vancouver, for instance. They occur in the danger zones half a block away from major transit stops (Brantingham et al., 1991). They occur on the edges or borders between neighbourhoods of distinctly different character and social status (Brantingham and Brantingham, 1975 and 1993b; Brantingham et al., 1977). They occur on major pathways and at major nodes where large numbers of potential offenders are brought together, through routine activities, with large numbers of potential victims and targets.

This array of possibilities means that it is important to understand the construction of the environmental backcloth and how its elements contribute to the choice of targets and target areas by offenders; and the development of fear on the part of individuals. Different land uses in different juxtapositions, arrayed in different ways on the transport network will have different potentials.

There are four broad types of urban sites that need to be considered: crime generators; crime attractors; crime-neutral sites; and fear generators.

**Crime generators**

Crime generators are particular areas to which large numbers of people are attracted for reasons unrelated to any particular level of criminal motivation they might have or to any particular crime they might end up committing. Typical examples might include shopping precincts; entertainment districts; office concentrations; or sports stadiums. In metro Vancouver these might include the downtown core; the Granville Island shopping and theatre district; the stadium complexes on False Creek; the Metrotown complex in suburban Burnaby. Major travel nodes, where many different travel paths and transit modes converge or intersect, can form crime generators. Bus interchanges, transit system stops, massive 'park and ride' parking lots can all become crime generators because of the volumes of people that pass through them.

Crime generators produce crime by creating particular times and places that provide appropriate concentrations of people and other targets (Angel, 1968) in settings that are conducive to particular types of criminal acts. Mixed into the people gathered at generator locations are some potential offenders with sufficient general levels of criminal motivation that although they did not come to the area with the explicit intent of doing a crime, they notice and exploit criminal opportunities
as presented (either immediately or on a subsequent occasion). Both local insiders and outsiders may be tempted into committing crimes at crime generator locations.

**Crime attractors**

Crime attractors are particular places, areas, neighbourhoods, districts which create well-known criminal opportunities to which strongly motivated, intending criminal offenders are attracted because of the known opportunities for particular types of crime. Examples might include bar districts; prostitution areas; drug markets; large shopping malls, particularly those near major public transit exchanges; large, insecure parking lots in business or commercial areas. The intending offender goes to rough bars looking for fights or other kinds of 'action'. The intending offender goes to red-light districts looking to solicit an act of prostitution; or, in the case of serial offenders, looking for a victim (Alston, 1994; Rossmo, 1994). The intending offender is drawn to a drug market area to deal in drugs. The intending offender is drawn to malls or stores with poor security arrangements looking for opportunities to shoplift. The intending offender is drawn to large, insecure parking lots looking for cars or car parts to steal.

Crimes in such locations are often committed by outsiders to the area. Strongly motivated offenders will travel relatively long distances in search of a target. (When insiders commit crimes in such areas, they may have previously moved to those areas because of their crime-attracting qualities; or, as in many cities, because poor areas are located near commercial areas thus creating many accessible targets near home.)

The attraction is created by an ecological label (Brantingham and Brantingham, 1991 and 1993b), often supplemented by the intending offender's personal past history, establishing that location as a known place to go for that kind of crime. As studies by Rengert (1994) and by Langworthy and LeBeau (1992a and 1992b) have shown, such crime-attracting areas can also generate other types of crime that are auxiliary or serendipitous by-products of the intending offender having been attracted to the area by the prospect of committing the primary crime.

**Crime-neutral areas**

There are also crime-neutral areas in most cities. Crime-neutral areas neither attract intending offenders because they expect to do a
particular crime in the area, nor do they produce crimes by creating
criminal opportunities that are too tempting to resist. Instead, they
experience occasional crimes by local insiders. Simple distance decay
and pathway models can describe the geography of crime in such
locations. The offence mix is different from the offence mix at either
crime attractor or crime generator locations (Brantingham and
Brantingham, 1994). It is important to note that areas are unlikely to
be pure attractors or pure generators or purely neutral. Most areas will
be mixed, in the sense that they may be crime attractors for some types
of crime, crime generators for other types of crime, and neutral with
respect to still other types of crime.

 Fear generators

Fear of crime is complex. There are many types of fear, but they seem
overall to be related to five broad categories:
— direct fear of another person;
— fear of being alone;
— fear at night, in the dark;
— fear in unknown areas;
— fear of encounters with ‘scary’ people.

Fear of crime is a general fear of being attacked, of suffering some
physical harm, of suffering an intrusion that destroys privacy and
dignity. It is not generally tied to a concern for property loss. Fear is
enhanced by:
— personal physical vulnerability: people who because of age or lack
of strength feel much more at risk of harm if attacked, feel much
more fearful;
— lack of control over the situation: people who feel at risk in a
situation but feel they cannot do anything about it are much more
fearful. This is why subway trains are so scary: a passenger cannot
be sure who might get on at the next station; and if someone scary
gets on, there is no help and no escape until the next station.

Fear is greater with higher perceived vulnerability, more isolation from
‘known’ people, less control of what is happening or might happen. Fear
is higher for a potentially vulnerable person when alone in public space
with no sure knowledge of what is around, when necessary pathways
cross those of others seen as ‘potential attackers’ or when there are signs
that there are ‘problems’ – Wilson and Kelling’s (1982) broken windows,
Skogan’s (1988) indicators of incivility such as litter and graffiti – in the
area.
Nodes, paths, edges and land uses

Nodes

People commit offences close to the central places (nodes) in their lives: their homes; the places where they work; school; their favourite recreation sites; their normal shopping centres. People are also victimized close to the central places in their lives: their homes; the places where they work; school; their favourite recreation sites; their normal shopping centres (Brantingham and Brantingham, 1991). Both individual and aggregate crime patterns cluster around offender and victim nodes and along the principal pathways between them. Property offenders – robbers and burglars – commit nearly all of their offences in the awareness spaces defined by the nodes and paths of their routine activities (Maguire, 1982; Rengert and Wasilchick, 1985; Gabor et al., 1987; Wright and Decker, 1994). The same appears to be true of serial rapists (Canter and Larkin, 1993; Alston, 1994) and serial killers (Rossmo, 1994).

People tend to share many of their life nodes. Thousands of people shop at the same malls, work in the same office complexes, change buses at the same interchanges, go to the same sports stadia, go to the same cinemas, etcetera. The mixture of uses at such nodes, and the exact ways they are clustered together in the built environment can go a long way to determining whether particular nodes are crime attractors, crime generators, fear generators or crime-neutral spots. Moreover, some uses may have additive or even multiplicative effects if they are clustered together.

Nodal concentrations of crime appear both in research using objective, Euclidean measures (Capone and Nichols, 1976; Sherman et al., 1989) and in research using cognitive images or non-Euclidean measures (Carter and Hill, 1979; Brantingham and Brantingham, 1981). This is so because the character of the built environment, the clustering of land uses and the temporal routines of daily life cluster nodes, channel movement and force a convergence of uncountable individual path potentials into a limited number of actual paths between nodes (Chapin, 1974; Lowe and Moryadas, 1975; Whyte, 1988). The character of actual paths can be measured in a variety of ways.

The criminogenic characteristics of activity nodes are sometimes increased by the types of activities carried out at them or by the particular high-risk users (e.g., teenagers, or motorcycle gangs, or alcoholics or drug users or singles intent on meeting new people) who frequent them. For instance, people may go to a bar simply to drink, but
if it is a bar where many people become drunk it is likely to experience a lot of assaults. People who go to such bars with no prior intent may nevertheless be swept up into fights.

**Paths**

Paths are critically important in shaping routine activities, everyday life and special events as well. Paths determine where people go and what they learn about the city. People spend long hours in routine paths, travelling to and from work, school, shopping, entertainment. Paths determine where people search for criminal targets and where people are victimized.

Because paths are so important, street networks, traffic and transit patterns strongly influence the distribution of crimes (Bevis and Nutter, 1977; Beavon et al., 1994). Offenders who live close to one another tend to travel in the same direction toward the sites where they commit offences. Nodal crime sites such as a city centre bar district, a shopping mall, or a secondary school tend to attract offenders from many different directions (Costanzo et al., 1986). This pattern is very similar to the more general pattern of movement in relation to more mundane activities such as shopping. Criminal events cluster near major traffic arteries and near major intersections between arteries (Wilcox, 1973; Duffala, 1976; Bevis and Nutter, 1977; Alston, 1994; Beavon et al., 1994). Crime hot spots often centre on subway exits, bus stops, and freeway exits (Fink, 1969; Maguire, 1982; Brantingham et al., 1991), but are often restricted to times at which specific levels of traffic flow are generated.

Neighbourhood traffic permeability appears to have a substantial effect on neighbourhood crime rates (Bevis and Nutter, 1977; White, 1990; Beavon et al., 1994). The theoretical model that predicts crime and offender patterns also predicts that victimization patterns will be tied to the victim's routine paths and activity nodes. Although not researched to the same degree as the offender's journey to crime, the available literature seems to provide empirical support for this theoretical prediction. Research into the crime mobility triangles defined by the victim's residence, the offender's residence and the crime site shows that victim movement patterns are often as important in determining where and when a crime occurs as offender movement patterns (Rand, 1986; Burgess, 1925a and 1925b).

This makes particular sense when it is remembered that studies in the victim precipitation tradition (Fattah, 1991), in the lifestyle tradition (Hindelang et al., 1978) and the self-report tradition (Gabor, 1994) all
indicate that potential victim/potential offender status is a fuzzy set (McNeill and Freiberger, 1993), not a dichotomy. The movement patterns of both potential offenders and potential victims must be considered in understanding crime aggregate patterns, because it is often not certain which is which until criminal events unfold. Criminal events should occur where offender and victim activity spaces intersect. The aggregate patterns of high-probability criminal event zones in some particular place such as a city, a neighbourhood or, as Felson (1994, p. 134) notes, smaller places such as a factory, an office complex, a shopping mall or a housing estate, will be defined by the topological product of the activity spaces of the set of potential offenders and set of potential victims.

**Edges**

The environment is full of physical and perceptual edges, places where there is enough distinctiveness from one bit to another that the change is noticeable. At an extreme, the land bordering on a river is an edge; the houses behind a commercial strip development and the businesses on the strip form a perceptual edge. Parks have edges. Residential areas have edges. Commercial areas have edges. Land use zoning and transport planning frequently work in tandem with the result that major roads follow perceptual edges between different types of areas. Major roads themselves can constitute an edge.

Edges can be considered in terms of physical barriers; or in terms of the strong cognitive images created by paths with diverse land uses on either side of a road (Lynch, 1960); or in terms of the limits of perceptual comfort felt by outsiders entering unknown areas (Sacks, 1972; Repetto, 1974; Brantingham and Brantingham, 1975; Carter and Hill, 1979; Rengert and Wasilchick, 1985; Cromwell et al., 1991; Wright and Decker, 1994). They can also be considered as areas of potential territorial conflict between different groups or land uses (Shaw and McKay, 1942; Suttles, 1968).

The areas around edges often experience high crime rates (Shaw and McKay, 1942; Suttles, 1968; Brantingham and Brantingham, 1975 and 1978; Brantingham et al., 1977; Herbert and Hyde, 1985; Walsh, 1986). Edges may create areas where strangers are more easily accepted because they are frequently and legitimately present, while the interiors of areas may constitute territories where strangers are uncomfortable and subject to challenge. Edges may also contain mixes of land uses and physical features – crime generators and attractors – that concentrate
criminal opportunities. This seems particularly likely on edges formed by major roads, which tend to concentrate large numbers of businesses and high-density residential blocks (Beavon et al., 1994).

Of particular importance are the spatial and temporal edge effects relating to crowds and to high-activity areas. Many of the crimes that occur at high-activity locations such as sporting arenas or commercial centres, or that occur at high-activity times such as store closing or bar closing, in fact occur at the edges of the high-activity location or high-activity time. Crimes cluster on the street near the subway station or bus stop, at the edge of the normal waiting area (Shellow et al., 1974; Levine and Wachs, 1985; Brantingham et al., 1991). Crimes often cluster in the alley behind a strip of shops (Wilcox, 1973). Robberies in Oakland, California have been shown to cluster on the fringe of parking lots and in the temporal edge half an hour after closing time in the commercial areas when most people have already departed (Wilcox, 1973). Angel (1968) has also conducted an interesting analysis of crime clustered on activity and temporal edges in Oakland.

While edges sometimes identify an open-access space, they may also identify territorial limits or boundaries that separate areas of high and low crime rates. Ley and Cybriwsky (1974) and Taylor (1988) have shown how graffiti serve as territorial markers for groups of urban teenagers, defining the limits of their normal activity spaces. Suttles (1968) showed how complex territorial cues at neighbourhood edges can sometimes form buffer zones between neighbourhoods that reduce social conflict and crime for those areas.

Sometimes the edges between different types of neighbourhoods can form psychological and perceptual barriers that deflect external offenders (Brantingham and Brantingham, 1975; Wright and Decker, 1994). While offenders invariably identify rich neighbourhoods as good locations for hunting targets, they consistently commit crimes in neighbourhoods they personally know well or that are very similar in physical, social and economic characteristics to their home neighbourhoods (Repetto, 1974; Rengert and Wasilchick, 1985; Cromwell et al., 1991; Wright and Decker, 1994). Edges may also form psychological barriers that keep neighbourhood insiders locked within the neighbourhood as well as keeping outsiders out of the area. When this happens, most local crime will be committed by insiders. Offenders will be much harder for neighbourhood watchers to identify. As neighbourhood insiders, they will not stand out against the local environmental backcloth. This leads to a consideration of crimes committed by local area insiders and outsiders.
Land uses

Local land use policies that physically cluster or disperse uses that are attractive to particular types of people can be analyzed to help predict where common forms of crime are most likely to occur and to help explain why crime rates are high in one part of a city and low in another. Housing patterns, shaped by market forces, public policy, and personal choices, cluster people of similar social background together. The juxtaposition between land uses can affect the crime rates of entire neighbourhoods (Rengert, 1988). Some juxtapositions can expose potential targets in one area to large numbers of potential offenders in an adjacent area and create high inter-area crime rates. Some juxtapositions between different types of land uses can form criminogenic zones in which offenders can operate with relative freedom from scrutiny (Brantingham and Brantingham, 1975; Rhodes and Conly, 1981). Such zones of anonymity often occur along or near arterial and collector roads, reinforcing the criminogenic character of major paths and further concentrating crime on them.

Illustrations of approaches to the problem

Crime nodes: Burnaby

One way of approaching the problem of building a sufficient understanding of the crime risks associated with different urban forms and structures is to begin with a mapping of crime occurrence patterns, then looking to see what sorts of crime generators and crime attractors might be present. So many generators and attractors are clustered in city centres by design that they pose a much more difficult task to address. To illustrate the approach here, we have elected to look at the municipality of Burnaby, one of the largest and most densely populated suburbs in the greater Vancouver region.2

Figure 1 (p. 16) depicts criminal code offences known to police in Burnaby in 1991. Three major crime peaks are labelled. (The patterns are essentially identical when rates are plotted.) Each represents a collection of crime generators and crime attractors. Peak 3 shows the effect of a crime generator, a major bus interchange. This bus interchange, which connects three major municipalities, is

2 We are indebted to Jonathan Alston who gathered the site data reported in this illustration.
located in what is principally a residential neighbourhood with few additional crime generators or crime attractors nearby. The neighbourhood itself is relatively low-income and high-density. More than a third of the criminal code offences reported to the police in the neighbourhood (37%) occur within 500 metres of the bus interchange. There is no secondary school, no teenage attractor such as a video game arcade or recreation centre within reasonable walking distance. At the far edge of the neighbourhood, about a kilometre and a half away along the major highway that traverses the area, there is a notorious bar reputed to attract criminals.

*Peak 2* combines the effect of a major bus interchange with other crime attractors and crime generators, in this case a major shopping mall. The immediate neighbourhood also features a major recreation centre, a public library, a variety of fast-food restaurants, and a number of youth-oriented businesses within easy walking distance of the bus interchange and mall entrance. Much of the neighbourhood is high-rise, high-density residential development. The mall itself includes a multi-screen budget cinema, a video arcade, and a food fair. More than one-fourth (27%) of all crimes reported to the police in the neighbourhood occur within 250 metres of the bus interchange/mall entrance that forms the centre of this high-crime node.

*Peak 1* shows the effect of combining a large list of crime attractors and crime generators. It combines the largest shopping mall in British Columbia with a major bus interchange and a metro station. The mall includes two multiplex movie theatres, several food courts, video arcades, restaurants and franchise hamburger shops, and a casino. Close by are some bars with reputations as criminal attractors. The combination of large-volume destinations, intersections of major transit routes, juvenile-attracting destinations, and crime attractors support the highest crime rate in the municipality.

Figure 2 (p. 16) shows the distribution of total complaints to the Royal Canadian Mounted Police in Burnaby's policing District 2 during 1994 by policing atom. District 2 forms the northeast quadrant of the municipality and includes peak 2 from figure 1 as well as Simon Fraser University. Note that, consistent with findings from a recent campus victimization survey (Brantingham et al., 1995), the university does not form one of the significant crime hot spots in District 2 despite the fact that it has a large number of students who travel to campus by bus each day. The university's relative isolation on top of a small mountain, surrounded on all sides by wilderness park, largely removes it from the activity spaces of
Figure 1: Burnaby Criminal Code calls 1991

Figure 2: Burnaby District 2 total complaints 1994
most campus outsiders, including most potential outsider offenders. Mall 2 was identified as Peak 2 in figure 1. It is the dominant crime locus in District 2. In 1994, as in 1991, the location combined a series of generators and attractors – a bus interchange, low-end shops and budget cinemas in the mall, fast-food outlets adjacent, as well as an adjacent recreation centre – that supported high levels of crime.

Kensington is a different kind of crime locus. It is a smaller, local shopping centre anchored by a large supermarket and a government liquor store with many smaller shops and fast-food restaurants in the complex. It is adjacent to a park and to the largest high school (senior secondary school, for adolescents aged 14-18) in the municipality. It is located on one of the major commuter highways running through the municipality. Although there is a local bus stop, there is no major bus interchange at this location. There is no video arcade, and few businesses that specially cater to adolescents. There is no bar nearby. The effect here – a combination of a local shopping centre and a high school and the movements between them – generates a local crime peak within District 2. This peak shows as a smaller peak adjacent to peak 2 in figure 1.

A ridge of slightly elevated crime levels can be seen running from Kensington to Mall 2, following the principal pathway between them. This pathway skirts the base of the small mountain on which university is located. As a major pathway, the route of least resistance between these crime generator destinations itself becomes a crime generator. Note that both figure 1 and figure 2 also show some areas, interspersed with the crime peaks and ridges, that exhibit very low crime rates. These are the crime-neutral areas where there are no crime attractors and no crime generators. Crimes occur in such areas, but in low frequency and low concentration.

**Crime rates by land use: Cambridge, 1971**

Another approach to understanding crime attractors and crime generators and how they fit together is to analyze the distribution of crimes across different types of land uses. We illustrate this approach with some old data from Cambridge, England. During the early 1970s we had an opportunity to obtain 1971 crime data for the City of Cambridge from the Cambridgeshire police. These data recorded crimes known to the police according to a standardized land use classification scheme. We were able to develop a data file describing the land use at each address in the city in 1971 by merging information
from several sources: business use records maintained by the Department of Environmental Health to enable sanitary inspections under various statutes; commercially published city directories; the 1971 Cambridge telephone directory; and some county records. By separately collecting address level data on burglaries known to the police, we were able to make of estimate of the known burglary rates for a large number of land use types. Table 1 shows the results rank-ordered by 1971 rates per 100 land uses in that category.

The two most frequently burgled land uses were sports (and other) clubs and youth clubs. These uses had clear crime generator characteristics: they pulled in huge numbers of people in the ordinary course of doing business so that they fit into the activity and awareness spaces of large numbers of people. At the same time, their clientele tended to fit the demographic profiles - young, male, lower income - of potential offenders. A micro-analysis of which clubs were most frequently burgled and which were not against the backdrop of the transport patterns of the time would be very interesting. Note that the two next most burgled uses, restaurants and laundries, are also high traffic uses that can be expected to be to be found in many people's activity and awareness spaces. They also feature alcohol, and are likely to have cash from evening operations stored on the premises at night.

At the other extreme are ironmongers, doctors' offices, college hostels, pubs and tailors' shops. Some, such as the ironmongers' shops, are unlikely to contain much that would be attractive to burglars. Others, such as tailors and college hostels have a very specialized clientele and are likely to fit into only a few people's routine activity spaces, even in a college town. The low burglary rates experienced by pubs is somewhat surprising to North Americans since their cognates, bars and taverns, seem to be criminogenic everywhere in North America (Roncek and Pravatiner, 1989; Roncek and Maier; 1991; Verma, forthcoming 1995). Few North American bars, however, have resident owners in the way that pubs in Cambridge had 25 years ago. Things might be different in Cambridge now. We also suspect that doctors' offices would run a higher risk in North America since they might be thought to house a variety of drugs in their dispensaries.

Note that there are a number of land uses that are not treated in this table. Most are omitted because they experienced no known burglaries during the year. No one, for instance broke into any of the town's many museums and libraries in order to steal paintings or rare books. Some uses are omitted because while they had high burglary rates there were very few of them: hospitals are a case in point. Some uses were not
<table>
<thead>
<tr>
<th>type of land use</th>
<th>rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>sports or other club</td>
<td>89.29</td>
</tr>
<tr>
<td>youth club</td>
<td>50.00</td>
</tr>
<tr>
<td>restaurant</td>
<td>30.43</td>
</tr>
<tr>
<td>laundry</td>
<td>21.62</td>
</tr>
<tr>
<td>off-license</td>
<td>20.83</td>
</tr>
<tr>
<td>scrap yard</td>
<td>20.00</td>
</tr>
<tr>
<td>general business office</td>
<td>19.53</td>
</tr>
<tr>
<td>government office</td>
<td>18.18</td>
</tr>
<tr>
<td>boutique, ladies' dress shop</td>
<td>16.67</td>
</tr>
<tr>
<td>department store</td>
<td>16.67</td>
</tr>
<tr>
<td>garage, filling station</td>
<td>16.38</td>
</tr>
<tr>
<td>post office</td>
<td>14.29</td>
</tr>
<tr>
<td>other shop</td>
<td>14.25</td>
</tr>
<tr>
<td>church</td>
<td>14.10</td>
</tr>
<tr>
<td>warehouse, wholesaler</td>
<td>13.16</td>
</tr>
<tr>
<td>hotel</td>
<td>13.04</td>
</tr>
<tr>
<td>radio, television, electrical appliances</td>
<td>11.94</td>
</tr>
<tr>
<td>photographic shop</td>
<td>11.54</td>
</tr>
<tr>
<td>chemist</td>
<td>8.82</td>
</tr>
<tr>
<td>workingman's club</td>
<td>8.33</td>
</tr>
<tr>
<td>grocer, baker, butcher, supermarket</td>
<td>7.79</td>
</tr>
<tr>
<td>jeweller</td>
<td>7.69</td>
</tr>
<tr>
<td>shoe shop</td>
<td>7.12</td>
</tr>
<tr>
<td>bank</td>
<td>4.45</td>
</tr>
<tr>
<td>YMCA</td>
<td>3.85</td>
</tr>
<tr>
<td>newsagent, tobacconist, confectioner</td>
<td>3.33</td>
</tr>
<tr>
<td>ironmonger, blacksmith</td>
<td>2.70</td>
</tr>
<tr>
<td>doctors' office, dentists' office</td>
<td>1.90</td>
</tr>
<tr>
<td>college hostel</td>
<td>1.72</td>
</tr>
<tr>
<td>public house</td>
<td>1.61</td>
</tr>
<tr>
<td>tailors, menswear</td>
<td>1.61</td>
</tr>
</tbody>
</table>

addressed in the 1971 police data set – primary and secondary schools most notably.
The point of this exercise is to suggest that it is now possible to conduct such analyses in many cities in North America and Europe. A bank of such studies, for many different types of crime, could begin to give us the base for estimating the criminal victimization risks associated with different types of land uses.
New directions for research

We think that a research programme expanding on the considerations set out in this paper could lead to the development of an empirical tool for estimating the criminogenic impact of planning decisions. Such a tool would allow police and town planners to estimate the likely increase in calls for police services (and consequent need for increased police and other criminal justice system personnel and resources) inherent in all kinds of planning decisions: changes in businesses operating out of a specific address; individual site redevelopments; large new developments such as green field housing estates and shopping centres; traffic reroutings and changes to transit services; relocation of institutions such as hospitals or schools; and so forth. To accomplish this we suggest several parallel lines of research which we plan to expand or begin in Vancouver, and which we hope other scholars will undertake in other cities.

First, we plan to expand the scope of our crime-mapping exercises to cover much larger parts of the Vancouver metropolitan area, and to expand coverage over time. High-crime nodes identified through the mapping exercises will be subjected to micro-analyses to determine land use mixtures, path placements, and clientele. Activity patterns at each site will be studied. This should provide us with a better understanding of crime generators and crime attractors.

Second, we plan to merge police and planning data bases to begin constructing crime risk tables by land use in Vancouver. This will, of course, involve some extensive data purification and clarification exercises along the way.

Third, we plan to explore the situational characteristics of high and low-risk establishments within particular use categories. Location on transport networks, position on neighbourhood edges and location with respect to large nodes such as schools and shopping malls will receive particular attention.

Fourth, we plan to conduct formal juxtaposition analyses that look at particular uses in conjunction with other, different types of uses. Is a bar, for instance, more likely to experience problems if it is situated adjacent to other bars, or if it is instead surrounded by theatres and restaurants, or if it is located in the middle of a residential neighbourhood? In Vancouver it is possible to explore the current pattern, but it is also possible (in at least some communities) to view things over time by utilizing various business licensing data bases. This has the effect of creating many different natural experiments from
which it may prove possible to draw very strong conclusions.
Fifth, we hope to conduct potentiation analyses that look at the spatial
and temporal crime fields created by crime generator and crime
attractor nodes. This is an expansion of work that was begun by Marcus
Felson in his piece on predicting crime at any point on the city map
(1986). Research by our students has already demonstrated that major
roads in Vancouver have criminogenic fields that reach out approxi-
mately half a kilometre on either side (Weigman and Hu, 1992). We have
shown that one large Burnaby mall has an apparent criminogenic field
as well (Brantingham and Brantingham, 1994). We suspect that it may be
possible, eventually, to develop criminogenic field estimates for many
different crime generators and crime attractors. The goal of all this will,
eventually, be to merge the findings from these studies into a data base
that can provide police and town planners with a tool for estimating the
criminogenic consequences of their normal planning decisions.

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Seeing off the danger

Threat, surveillance and modes of protection

Nick Tilley

Surveillance is clearly associated with social control – when we want to control others’ behaviour we keep an eye on them. Surveillance is also associated with risk reduction – most of us routinely pay some attention to possible dangers. But forms of surveillance change, as we shall see. Yet surveillance does not control behaviour directly. It is not in itself a physical restraint. Thus, as Mayhew says, ‘Any assessment of the potential for reducing crime through making more deliberate use of surveillance (...) demands a clear understanding of the process through which surveillance achieves its effect’ (Mayhew, 1981, p. 120). Moreover, again as Mayhew acknowledges, the circumstances in which modes of surveillance are introduced will shape potential impacts.

This article attempts to make sense of variations in forms of surveillance. It considers sources of innovation in surveillance. It also speculates on the way(s) in which surveillance may effect social control and/or protection. In addition, it reflects on the conditions needed for differing types of surveillance to accomplish these outcomes.

This article considers how new forms of surveillance have emerged with alterations in the context within which they operate; and how causal mechanisms triggered also alter, with consequences for their effects on control and protection outcome patterns. The article sets out four 'ideal-type' settings in which surveillance occurs, and in which issues of crime and control, protection and predation, and stealth and survival are implicated. In relation to each, the following questions are asked:

a What surveillance occurs? That is, what is the behaviour in question?

b What are the circumstances of the surveillance behaviour which are relevant to the mechanisms which will be triggered? That is, what is the context?

c What causal forces does the surveillance behaviour trigger in these circumstances?

d What are the consequences of the surveillance behaviour triggering the causal mechanisms in the given context? That is, what are the outcome patterns?

The four 'ideal types' emerged in chronological order. There are contextual changes producing additional forms of surveillance. There are also developments in the object of surveillance.

Approximations to all four cases could be found in countries such as Britain, which are in the throes of late modernity. Four main conjectures emerge from the analysis:

a surveillance has a very long history, going back to early developments in animal life where it triggered mechanisms enhancing the likelihood of survival from threats from predators;

b new forms of surveillance have been added over time with alterations in context and changes in the nature and sources of predatory threats and with the development of culture;

c threat-reducing and social-control mechanisms triggered by old forms of surveillance change somewhat as context alters; and

d modern forms of surveillance trigger social-control and threat-reducing mechanisms differently according to the contexts in which they are implemented.

The task for someone planning to reduce threat or to impose social control is to implement forms of surveillance which in the context in question will trigger effective causal mechanisms producing preferred outcome patterns.

Pre/non-human surveillance

The connectedness of surveillance to protection (and predation) has a very long history indeed. Moreover, it is not restricted to humankind. Richard Dawkins (1986) suggests that the development of sight is wrapped up with threats and responses to them. He states: 'Good eyesight, accurate and true down to pernickety detail, can be a matter of life and death for an animal. A lens, properly corrected against aberration, can make all the difference, for a fast flying bird like a swift, between catching a fly and smashing into a cliff. A well-modulated iris diaphragm, stopping down rapidly when the sun comes out, can make
all the difference between seeing a predator in time to escape and being
dazzled for a fatal instant' (Dawkins, 1986, p. 302).
Dawkins argues that the precursors to the efficient eye he describes
here and even good sight which has become impoverished (for example
by darkness) provide advantages over sightlessness (Dawkins, 1986,
pp. 77-86). In some circumstances the advantages brought include threat
reduction.
Imagine a context in which there is severe intra and inter-species compe-
tition, including mutual predation. What behaviours are necessary to
thrive or survive? Stealth will be required if those intent on avoiding
being victims are to be caught. Surveillance will be required if those not
wishing to be victims are to avoid it. What causal mechanisms are
triggered by surveillance in the context described? They might include
one or more of the following:
a  maximizing time to run away and escape;
b  time to exploit opportunities for concealment;
c  time to (mis)represent one's size and strength;
d  time to prepare to fight;
e  time to call on the help of others to fight the prospective assailant;
f  time to reduce one's attractiveness as a target for attack, e.g.
   the hedgehog presents prickles, or the skunk presents strong
   unpleasant smells.
Apparently altruistic surveillance may permit further mechanisms,
where watching and watching over may be separated. These could
include:
1  misleading the assailant as to one's own vulnerability to act as a
   decoy for others, e.g. many ground-nesting birds present a
   distraction display, drawing predators from chicks;
2  warning prospective victims of imminent attack, so that they can
take evasive action;
3  preparing defences for the prospective victim;
4  concealing the more vulnerable.
It is worth noting that many of these relate to the underlying general
mechanisms identified by Clarke in his accounts of situational crime
prevention (e.g. Clarke, 1992). Thus (a) and (b) are about making
predation more difficult; (c) is about increasing perceived risk and
difficulty; (d) is about increasing actual difficulty; and (e) and (f) are
about increasing actual and perceived risk to the assailant. Also (1) and
(4) are about reducing the (perceived) reward; (2) is about increasing
difficulty and risk; and (3) is mostly about increasing difficulty and
risk.
As a result of these mechanisms, the prospective assailant may either withdraw, since the prospects of success are diminished or the risks to self are increased, or alternatively either perish or be repelled in a continued effort to win the quarry.

The causal mechanisms triggered by stealth, less at issue here, have to do with overcoming the defences mounted by the prospective quarry. The particulars of the contexts (ecological niches) in which surveillance and stealth occur will shape exactly which mechanisms can be and are triggered by the detailed behaviours which take place.

Marx suggests that over the course of human history, natural threats have been replaced by social threats. Both the attrition of natural threats, with increases in control over nature, and the development of new social threats lead to alterations in the needs for, forms of and mechanisms triggered by surveillance. It is to conjectures about these that we now turn.

In the discussion which follows, surveillance will be looked at specifically in terms of the roles it can play in threat or predation reduction.

**Pre-modern human surveillance**

The characterization of pre-modern society which follows is mostly constructed from depictions found in classical sociology (Marx, Weber, Durkheim). Contextual features of pre-modern societies include the following: relatively little internal differentiation; shared and strong conscience collective; low level of individualism; low level of privacy; few personal possessions; small populations in communities; short-range routine geographical mobility; relatively isolated communities, highly dependent on the immediate locale; relatively little formal social control; some external threat.

Three potential sources of threat can be distinguished:
- when within the community, from fellow inhabitants;
- when within the community, from those outside;
- when outside the community, from those outside.

Surveillance takes three forms, responding to these three threats. Within each community, fellow residents routinely watch and watch over others. Some members of the community may be tasked with looking out for external threats. When beyond the bounds of internal surveillance, there will be attention to the risk of attack (from those from other communities or non-humans). The potential threat-reducing mechanisms triggered will in each case vary.
Routine surveillance within communities

In pre-modern societies, we can conjecture that the major protection mechanisms triggered by routine surveillance will relate to informal social control. Routine, natural surveillance, in a context in which there is little privacy and a high commitment to a shared set of values, increases the risk of social disapproval, loss of face, shame and social exclusion for those who might otherwise be tempted to break rules. If I break a rule here, most or all will be significant others. If they see me, I am going to be shamed. I’ll be disinclined to take that risk. Even if I’m not seen by a significant other those who see me are likely to know who I am and who my significant others are, since the population is small. Word will get back, and I will be shamed (cf. Braithwaite, 1989). The costs to me of this would be huge. In addition to shame, if the infraction is serious enough and I am seen, I am likely to face physical chastisement, which I’d obviously prefer to avoid, though its experience may provide a route to re-integration. In Marcus Felson’s terms, the prospective offender has plenty of handles and there are plenty of intimate handlers (Felson, 1987 and 1994).

Looking out for external threat

Provision for recognition of external threat potentially triggers several safety-enhancing or damage limitation mechanisms. It enables preparations to be made to try to resist or repel (if the local context is right ...). It may provide time to move to safety valued and vulnerable people and goods. It may enable valued goods to be destroyed in the event of attack, reducing the prospective pay-off for the would-be attackers. Knowledge that a community is attending to the risk of external threat may help deter those who would otherwise threaten attack. Control is here obviously not achieved by an intimate handler, but by guardianship. My decision to attack or not attack, where social rules are not at issue, and where there are no significant others whose approval I value, is rooted in my estimate of the balance between likely cost-benefit pay-offs. That they are watching out for me increases the potential costs and reduces the likelihood of benefits. The underlying mechanisms are again those stressed in situational crime prevention – actual and perceived increases in risk and difficulty, and reductions in benefit (Clarke, 1980 and 1992).
Looking out for threat when not within the community

Beyond the bounds of community life, the surveillance undertaken will resemble in some respects pre/non-human surveillance. If the context is a conducive one, the mechanisms triggered by vigilance include provision of time to escape, time to hide, time to mount or organize defences etcetera. The success or failure will be immediate, the group protected will be highly circumscribed, and the threat is not made in terms of socially constituted rules of conduct.

Some rules within the community are likely to relate to interpersonal conduct, prohibiting forms of threat and predation. Others may licence predation of some by others. Others may not relate to predation at all.

Urban surveillance

Urban surveillance will be dealt with only very briefly. Contextual characteristics will be borrowed from classical urban theorists (Simmel, 1903; Wirth, 1938; Jacobs, 1961; Park and Burgess). The context for surveillance includes, thus, the following features: relatively high differentiation; geographical specialization; close proximity of differing land uses; large, dense populations; some sense of community in local areas; high rates of short-range male mobility to work; some residential mobility; growing anonymity; some formal social control; high rates of economic inequality.

Within towns, there may be the beginnings of more formal surveillance. But, informal surveillance is more significant.

There is routine everyday observation of outsiders. There is also routine everyday observation of behaviour within the community. As Jane Jacobs (1961, p. 35) puts it, 'Large numbers of people entertain themselves, off and on, by watching street activity'. And what mechanisms are triggered by these forms of surveillance in this early urban context?

Observation of others within the community

Jane Jacobs (1961, p. 35) again spells out what mechanisms may be triggered by this form of surveillance, especially in smaller settlements, when she states: '(...) controls on acceptable behaviour, if not on crime, seem to operate with greater or lesser success through a web of reputation, gossip, approval, disapproval and sanctions, all of which are powerful if people know each other and word travels'. Prospects of this reaction may inhibit deviant behaviour. Jacobs recog-
nizes, however, that in the growing urban setting, this will not be enough, when she goes on to say: ‘But a city’s streets, which must control not only the behaviour of the people of the city but also of visitors from suburbs and towns who want to have a big time away from sanctions and gossip at home, have to operate by more direct, straightforward methods.’

**Observation of strangers**

Jacobs, of course, wants as much natural surveillance as can be accomplished, since, ‘the streets must not only defend the city against predatory strangers, they must protect the many, many peaceable and well-meaning strangers who use them’ (p. 36).

Protection from threats is the outcome of surveillance and the protection is said to be afforded both to the resident and the visitor. For this, she argues people must want to use streets. She says: ‘Safety on the streets by surveillance and mutual policing sounds grim, but in real life it is not grim. The safety of the street works best, most casually, and with least taint of hostility or suspicion precisely where people are using and most enjoying the city streets voluntarily and are least conscious, normally, that they are policing’ (p. 36).

Surveillance is thus achieved through street use. Street use in turn is accomplished by mixed function areas, providing for a continuous flow of street users, so bars, shops and restaurants assist this informal surveillance by drawing in a steady flow of people to watch what is happening. Watching accomplishes control only partly through informal social control. The proprietors also, of course, represent more formal presences with an interest in preserving safety and order. Both street users and those working in businesses potentially intervene directly in the event of observed offences.

**Formal surveillance**

Even more formally than those working in local businesses are, Jacobs notes, those hired for surveillance purposes. These, she remarks, are to be found in dull, rich streets, where little is happening. Street life fails to provide for spontaneous surveillance, so, ‘a network of doormen and superintendents, of delivery boys and nursemaids, a form of hired neighbourhood, keeps residential Park Avenue supplied with eyes. At night, with the security of doormen as a bulwark, dog walkers venture forth and supplement the doormen’ (p. 40).
The mechanism through which this formal surveillance is supposed to operate is presumably by providing Felsonian capable guardians able and inclined to intervene if they observe predatory behaviour and protect the victim. And, knowledge that they are there potentially to do so may deter the motivated offender.

**Modern metropolitan surveillance**

The contextual conditions for public surveillance in modern metropolitan society include the following: large centres of population; high levels of instrumental individualism; mass ownership of mass-produced goods; most shopping in supermarkets and large malls; high rates of ownership and use of cars, with mass mobility; marked divisions between differing area usages; diminishing area-based community and dependency; cultural diversity; high rates of women's employment; small families; proliferation of single-parent families; mass entertainments; high rates of unemployment; growing crime rates; mass media and public interest in crime.

These contextual developments attenuate the natural surveillance, described by Jane Jacobs, certainly in large swathes of the metropolis. Women's employment reduces life on the 'stoop' and the eyes available to watch the street. The motorcar means that there is reduced pedestrian activity offering entertainment to those who would watch. Mass home entertainment provides more amusement that street life. Mass commercial entertainment draws potential eyes from the street. Some specialized areas will be bereft of residents who can watch. Residential specialization impedes that mixed usage which provides for high usage levels, which create continuous surveillance. Supermarkets and shopping malls take the pedestrian shopper off the streets, and removes the small-scale proprietor-observer.

The previous surveillance-driven controlling causal mechanisms are no longer triggered or where triggered have reduced causal power. Clearly diminution in surveillance leads to commensurate reductions in release of threat-reducing causal mechanisms. But even where surveillance does occur, the potential for control mechanisms to be triggered is lessened. Women working, small families, instrumental individualism, increased geographical mobility and reductions in community cohesion all mean that those seen are less likely to be known and hence deterred through potential shaming. Even if recognized it is less likely that the observer will have connections with the miscreant's significant others to enable informal control to be effected, or for its threat to act as a deterrent.
Given increasing cultural diversity, it is less likely, even if there is recognition and word does get back to the individual's significant others, that a sufficient mutual commitment or sense of shared values will exist to underpin shaming.

The growth in production and circulation of mass consumption goods means, of course, that scope for predatory crime increases. The mass availability of motor cars both makes them targets of crime and facilitate its commission (Clarke, 1992). These contextual features help trigger crime, where at any rate surveillance-related mechanisms of control are diminished in number and power.

Against this background, which is liable to lead to increasing crime rates as an outcome, it is not surprising, given the long history of surveillance and its role in protection and control, that efforts are made to formulate new means of surveillance and new ways of facilitating it. Two recent innovations in surveillance, in particular, are discussed here – closed-circuit television and Neighbourhood Watch (including also watch schemes more generally), though increasing amounts of lighting, policing developments, the spread of alarms, and mass use of security guards could also have been included. With regard to enhancements in lighting, Painter has produced an account stressing context and mechanisms, which is highly consonant with the type of analysis suggested here (Painter, 1994).

**Neighbourhood Watch**

The first Neighbourhood Watch scheme in Britain was established in 1983 in Mollington, Cheshire. This is a village, not part of a metropolis. The idea of Neighbourhood Watch was, however, enthusiastically taken up by the Metropolitan Police and is now promoted nationally. There are currently over 130,000 schemes covering more than 5,000,000 households. The core idea of Neighbourhood Watch, when it started in this country, was that it would act as the eyes and ears of the police. Its presumed mechanism of control appeared to be that offenders would be put at higher actual or perceived risk of apprehension by the extension of the surveillance function of the police to the community.

In 1981, prior to the introduction of Neighbourhood Watch in Britain, Mayhew (1981) considered the potential role of risk increases, following enhancements in community surveillance, on offending behaviour. The mechanism connecting surveillance and protection/control is, she conjectures, the perceived increased chance it brings that one will be seen, caught and dealt with.
Referring to surveillance in the community and the prospects for American 'block watch', Mayhew points out that the actual chances of being seen offending are small. Moreover, even if seen behaviour is not always properly interpreted. Then, even if the behaviour is seen to be wrong it will often even then not be challenged or reported. Efforts to increase community surveillance do not look promising if the mechanism through which they work is actual increase in risk to miscreants. Nothing that has happened since Mayhew wrote rather speculatively along these lines suggests she was mistaken. Indeed, it now looks as if she showed remarkable prescience. But, if actual risk is not increased, what about perceived increases? Actual crime rate changes following the introduction of Neighbourhood Watch do not suggest that it has acted as a credible source of risk to prospective offenders (Bennett, 1990), though there is some evidence that some reductions have occurred in high-crime areas (Husain, 1990), especially where there is dense and intensive Neighbourhood Watch coverage (Forrester et al., 1988).

The context of metropolitan society is generally not conducive to continuous community surveillance and to action on behalf of unknown or little-known others. Also, it is easy for the offender to evade observation. Moreover, being seen per se will not be intrinsically uncomfortable, since with minimal efforts it is possible for the offender to find quarry where no known other is likely to see them. Such risk as there is is not of shame but of assault or formal action. And vigilantism, even if effective, is itself risky.

It has proven easier to introduce Neighbourhood Watch in relatively affluent low-crime areas, than in poorer high-crime ones (Husain, 1988; Mayhew et al., 1993). In lower-crime areas, there is, of course, less far for crime to fall. It is also likely already that those relationships with the police exist that are more likely to have suspicious behaviour reported. There may as well, especially in rural areas, already be community institutions through which residents know one another, which may provide the foundations for that informal surveillance and social control which characterized pre-urban and early urban society.

In higher-crime areas social divisions may be such that there is already fear and intimidation, together with suspicion of the police - a context not conducive to the development of community-wide organizations, especially ones which involve partnership with the police (McConville and Shepherd, 1992; Webb, 1993). This might suggest that Neighbourhood Watch is either superfluous or inoperable - a concept with surface validity, echoing as it does earlier contexts for control and protection and playing on the fact that faced with someone actually able
to do something about their offending most will not choose then to commit crimes.
Efforts at widespread introduction of Neighbourhood Watch into metropolitan society in the expectation that it will trigger effective crime prevention mechanisms through its encouragement of stranger surveillance have not so far proven very successful. The context is wrong for the measure to trigger crime prevention mechanisms to effect an outcome pattern where measurable falls of crime are achieved.
This is not to say that Neighbourhood Watch is always or necessarily useless. It might have non-crime preventive aims and functions. It may be made to work by triggering effective crime prevention mechanisms other than through surveillance. There may be some contexts in metropolitan society where forms of implementation of Neighbourhood Watch, including surveillance, can trigger crime preventive causal mechanisms. It may be possible so to alter communities that community surveillance can trigger crime prevention mechanisms. These possibilities are considered in Laycock and Tilley (1995), where it is argued that maximum (cost-)effectiveness can be achieved by tailoring Neighbourhood Watch to varying community contexts. Aims, conception and police involvement would differ according to circumstance, distinguishing in particular between what is possible and what is needed in high, medium and low-crime areas.

Closed-circuit television

Whilst Neighbourhood Watch is implemented in residential areas, closed-circuit television (CCTV) is more frequently installed in shops, shopping malls, public buildings, car parks and city centres. Here, there is little or no residential community which might even in principle be mobilized to provide partially organized surveillance. Yet there is much predatory crime and fear of crime. CCTV seemed to offer a potentially effective response to what was perceived to be a significant crime problem.
In Britain by late 1994 there were some eighty town centre schemes, with up to another 200 planned. The government has given its blessing, issuing a guide on CCTV in public places (Edwards and Tilley, 1994), and providing £5,000,000 in prize money for a competition for Home Office sponsorship: CCTV Challenge. The enthusiasm for this initiative is shown in the 450 entries.
Several of the mechanisms which, it was conjectured in Tilley (1993), might reduce car crime in car parks where CCTV has been installed
may also reduce crime in city centres. CCTV may work:

- by making it more likely that present offenders will be caught, stopped, removed, punished and deterred;
- by deterring potential offenders who will not wish to risk apprehension and conviction by the evidence captured on videotape or observed by an operator of a screen on which their behaviour is shown;
- by increasing pedestrian activity, leading to enhanced natural surveillance which deters potential offenders, who feel they are at increased risk of apprehension in the course of criminal behaviour;
- by facilitating effective deployment of security staff/police officers towards areas where suspicious behaviour is occurring, where they then act as capable guardians;
- by publicizing success in catching offenders, which is received by potential offenders who avoid the increased risk they believe to be associated with committing crimes;
- by symbolizing efforts to take crime seriously and to reduce it, leading the potential offender to perceive crime to be more difficult or risky and is deterred;
- by reminding people (especially where signs are used) that they are vulnerable, leading them to take greater care of themselves and their possessions, making crime more difficult and/or less rewarding.

Local patterns of crime motivation, types of victimization, physical circumstances, temporal and geographical patterns of town usage and predatory behaviour, facilities available in the area, other (complementary) crime prevention measures put in place, forms of operating the CCTV system, methods of communicating what is seen to capable guardians and so on provide detailed contextual conditions for CCTV to trigger these potential predation-reducing causal mechanisms. They will also be important in shaping the nature and rate of any displacement or diffusion of benefits, whose analysis again requires detailed mechanism and context models. The precise mechanisms triggered in the context will determine the outcome patterns achieved.

Conclusion

This is a very broad-brush picture. There are wide detailed variations within each overall configuration described above. These details are crucial for understanding the precise nature of the threat, the surveillance arrangements made, the mechanisms triggered and the outcome patterns which result. Of this we know rather little now.
Studies of surveillance need to become sharper and sharper to improve our understanding of the context, method, mechanism and outcome pattern configurations. Rather as Dawkins describes improvements in the acuity of the eye, one could hope for improvements in the acuity of our understanding, though there are some benefits even from fuzzy (in)sight. These are not only academic but relate also to the effective deployment of efforts to reduce threats/improve protection. Finally, it needs to be stressed that the account given here discusses innovations in surveillance methods. Surveillance in nature will clearly remain. Older forms of surveillance are supplemented, and in certain areas dislodged. It is likely, though, that in late-modern societies all forms of human surveillance will be found, varying according to local circumstances.

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Activity theory and the victim

Richard M. Titus

At the zoo, there always seem to be more visitors around the lions and tigers than around the wildebeest and antelope. Similarly, wildlife photographers and film makers typically devote much more attention to predators than to prey. Predator behaviours are more dramatic: stalking, pursuing, attacking, and devouring. By contrast, prey species behaviours are rather dull: grazing, looking nervously about them, fleeing when everyone else does, and dying helplessly.

That predators are intrinsically more interesting than prey may help explain why criminology has been more intrigued by offenders than by victims, and has devoted much more time to them. There may also be a belief that since offenders commit the crime, in order to control crime we must concentrate on understanding criminal motivation and criminal behaviour. A third reason may lie in the fact that any study of the processes by which persons become victims has in the past been considered by some to be 'blaming the victim'. Fortunately, this situation seems to be changing, e.g., Viano (1992, p. 10), 'To see one as the all-evil offender who deserves only punishment and the other as the all-innocent victim who needs only vindication is just too easy. Victimology should by now have reached a level of sophistication and assuredness to be able to reveal the complexity of the situation (...').' If 'the complexity of the situation' includes the fact that victims on occasion are to some extent implicated in their own victimization, this paradoxically may suggest that criminology can do more, not less, to help them.

Situational crime prevention, routine activity, lifestyle, and opportunity theories are somewhat unique in criminology in that they have includ-
ed crime victims and their property – along with offenders and environments – in their conceptualizations. There has recently been an attempt to integrate the rational choice perspective (Cornish and Clarke, 1986) with routine activity theory (Clarke and Felson, 1993b), but the chapters in Clarke and Felson (1993b) still devote considerably more time to offenders than to victims.3

I will argue in this paper that the victim should receive more than the customary amount of attention because, in Fattah's words (1993, p. 238), '(... ) in many cases the victim (target) is an integral part of the crime situation and the victim's characteristics and behaviour are, quite often, important situational variables'. In addition, as Anderson et al. (1995) have pointed out, attention to victimization and victims can be beneficial not only to crime prevention and offender detection efforts, but also to victim support programmes.

Some tasks for activity theory

As activity theories have received more attention, a number of areas have been singled out for particular scrutiny. For example, Finkelhor (1995) asks for more attention to age-related, developmental aspects as they affect the victims' suitability as targets, ability to protect themselves, and the environments they inhabit. Sampson and Wooldredge (1987) have found community-level effects on victimization, independent of individual-level effects, and have argued for more attention to community-level processes. Lynch (1987), examining the domains of work, school, home, and leisure, found victimization to be explained better by the nature of the activity than by the characteristics of the victim;4 he advocates more analysis on activity-domain levels. Meier and Miethe (1993) and Fattah (1991) believe that many of the measures currently in use are inappropriate proxies for the activity theory processes that they model; they call for more detailed and direct measures of these processes.

3 If e.g., a dwelling is burglarized, the owner is the 'victim' and the dwelling is the 'target'. Prevention programmes can be directed to burglars, dwellings, or owners. This paper will focus on the actions of persons, and therefore will employ the term 'victim' rather than 'target'. However, the situation could change: Fattah (1993), believes that the rational choice perspective offers great possibilities for the effective integration of victim-centred and offender-centred approaches.

4 This reminds one of Barker's (1968) finding that the actions of individuals in behaviour settings are predicted better by the characteristics of settings than the characteristics of the individuals in those settings.
Activity theory should also look more closely at the sequential nature of criminal events. The sequential nature of instrumental crime has often been noted (Brantingham and Brantingham, 1993; DeFrances and Titus, 1993; Cornish, 1994). Some non-stranger sexual assault appears to result from a sequence of events which the two parties interpreted differently (Fattah, 1991). Nonsexual assault typically escalates through a distinct series of stages, over either a short (minutes) or long (weeks) time period, often with important roles played by noncombatants (Garofalo et al., 1987; Fattah, 1991; Pallone and Hennessy, 1993). The better we understand these sequences in terms of the behaviour of victim and offender, the better our chances for disrupting them, preferably in their earlier stages, through modifications in the environment, or in the behaviour of victims.

This approach is already being incorporated in school conflict-resolution programmes and domestic violence reduction programmes. The victim's 'script' (Cornish, 1994) is, e.g., for dinner and a movie, and does not include being robbed, but the offender has a different script, and sometimes the two scripts come together.

Johnson, Natarajan, and Sanabria (1993) advocate offender ethnographies as a means of learning what strategies criminals employ in committing crime, what happens during the criminal episode, and what factors influence the choices and actions of criminals during the episode. Ethnographies have been useful in the case of burglars (Cromwell et al., 1991; Wright and Decker, 1994), drug dealers (Johnson, Wish and Anderson, 1988), and street robbers (Wright and Decker, in preparation). Would this type of research not be more solid if it were possible to include the victim? Perhaps we should study victims as carefully as we do offenders, even to the point of victim ethnographies. If so, recent victims, repeat victims, and others known to be at high risk (e.g., some occupational categories\(^5\), teenage males, residents of high-crime neighbourhoods), would be among the obvious candidates.

**The phenomenon of repeat victimization**

Just as a small percentage of offenders account for a disproportionate amount of crime, so a small percentage of victims account for a disproportionate number of victimizations. Just as high-rate offenders typically commit many different types of crime, high-rate victims fall

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5 See Fattah's (1991) dimensions of 'occupational proneness'.
prey to a variety of victimizations, along with other types of accident and misfortune (Fattah, 1991). Such persons represent a topic that warrants closer attention by activity theory researchers. Some interesting work on this topic has been done in Britain. As reported by Farrell and Pease (1993), in the British Crime Surveys of 1988 and 1992 the 5 percent of respondents who experienced five or more victimizations suffered 43 percent of all the crimes reported; half of those victimized in the 1992 survey were repeat victims and suffered 81 percent of reported crimes. Another research summary (National Board for Crime Prevention, 1994) shows that repeat victimization applies across a wide range of crimes, viz:

- Only 10 percent of domestic violence represents an isolated event.
- Once burglarized, a residence is reburglarized at four times the rate of unburglarized houses.
- In three surveys, 8 percent of motor vehicle theft victims accounted for 22 percent of the incidents.
- Over 39 percent of small businesses were found to have been reburglarized at least once in a year.
- A study in one school showed that 10 percent of pupils had been bullied at least once a week.

Using police data, another study (Anderson et al., 1995) found revictimization within 11 months as follows: non-residential burglary: 28 percent, residential burglary: 16 percent, theft from car: 10 percent, and car theft: 6 percent. Areas with high crime rates also tend to have considerably higher rates of revictimization (Trickett et al., 1992). We can see that chronic victimization is extensive and applies across a broad range of crimes. It appears that the risk of revictimization is greatest in the period soon after the previous victimization, for crimes as diverse as school crime, residential burglary, bias crime, domestic violence, car crimes, neighbour disputes, and retail crimes (Farrell and Pease, 1993). In domestic violence cases, the risk of revictimization is highest within the first eleven days and declines thereafter (Lloyd et al., 1994). In residential burglary, 40 percent of repeat burglaries occur within one month of the previous burglary (Anderson et al., 1995); after about six months the likelihood of repeat burglary returns to the average levels for a given area (Polvi et al., 1991). The risk of revictimization is specific to that dwelling: its nearest neighbours are at no greater risk than houses somewhat farther away (Anderson et al., 1995).
Repeat victims and crime prevention programmes

Persons experiencing repeat victimization may show one or more of the following attributes: location in a high-crime area, following a high-risk lifestyle, and involvement in a bad relationship; for business the victimization may result from trade practices that advance business goals considered higher in priority than loss prevention (Farrell and Pease, 1993). Though not dealing specifically with repeat victims, Fattah (1991) presents a list of 'target' characteristics, as seen by a potential offender, which can be elaborated upon and structured into three dimensions of victimization risk along a continuum of resistance to change:

- Factors the victim cannot change: age, sex, height, handicap, appearance, social class, race, etcetera.
- Factors the victim might be able to change: income, marital status, domestic partner, parents (with the court's help), neighbourhood of residence, place of school or employment, hours of employment, modes of travel, popularity, self-confidence and self-assertiveness, persons associated with physical strength, etcetera.
- Factors the victim can change: leisure time use (hours, places, type of activity), display and securing of property and personal possessions (including house and car), style of dress, alcohol and drug use, sexual activity, participation in delinquent or criminal activity, thrill-seeking behaviour, antagonism and aggressiveness in interpersonal relations, gambling and financial risk-taking, general vigilance, negligence and carelessness, level of cautiousness (investigating persons/places/activities before becoming involved in them), carrying/availability of weapons, etcetera.

Some in Britain advocate giving special attention to crime victims in '(...) the notion of crisis intervention, that human behaviour is most tractable at times of crisis' (Anderson et al., 1995, p. 36), and that 'Crime prevention and victim support are necessary for the same people (recent victims) at the same time (promptly after their victimization). Reaction to the last offence, if it has a preventive element, is proaction to the next' (op. cit., p. 3). These programmes should include an immediate response component to meet the victim's needs and to deal with the threat of early revictimization, and a long-term response component of actions that may take more time to implement and that are intended to become permanent (Farrell and Pease, 1993; National Board for Crime Prevention, 1994).

In addition to meeting the needs of crime victims, police concentration on those who have already been victimized is seen as a more efficient
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way to use police resources and identify priorities (Farrell and Pease, 1993; National Board for Crime Prevention, 1994). It is also argued that 'By pointing to the most probable times and places of future offences, repeat victimization also helps identify the times and places where offenders may be found and apprehended. There is potential for the development of a symbiotic relationship between crime prevention and offender detection (...)’ (National Board for Crime Prevention, 1994, p. 2). Along these lines, it is also clear that any programme incorporating the problem-solving approach to policing should pay special attention to repeat victims, who contribute disproportionately to an area's crime statistics, most especially in high-crime areas (Trickett et al., 1992). Some applications of this approach in Britain have been reported.

In a crime prevention programme for victims of residential burglary on a housing estate, the strategies included replacement of coin-operated gas and electricity meters (a frequent target), security upgrades, property marking, victim support and information, 'cocoon' neighbourhood watch (involving the victim's six nearest neighbours, who received security upgrades if they agreed to participate), and monitoring the modus operandi of local burglars to change strategies if required. The evaluation showed a substantial reduction in burglary for the entire estate over the next three years, compared to itself and also compared to the remainder of the police subdivision (Pease, 1992). Similar programmes for burglary victims in three housing estates showed a decrease in repeat victimization; while there was no apparent diffusion of benefits to other residents, neither was there any clear evidence of displacement (Tilley and Webb, 1994).

In a West Yorkshire project, victims of residential and non-residential burglary, and of theft of or from cars, receive an increasing level of police response based on the number of victimizations suffered in the previous year. Strategies include (as appropriate to a particular victim) security upgrades, property/vehicle marking, 'cocoon' watch, focused patrol, offender targeting, priority fingerprinting, and the loan of burglar alarms and vehicle location devices. The project is currently in implementation and has not yet yielded evaluation information (Anderson et al., 1995).

In a domestic violence reduction project, victims receive wearable alarms linked to the police by cellular phone, responding officers receive en route information on prior calls and on current court orders, victim service workers offer support and develop an action plan with the victim, and lecture and discussion sessions are held with the police to raise their awareness of the issue of domestic violence and the police role. Evidence from a limited number of victim interviews indicates that
the pendant alarms have greatly increased the recipients' sense of security (Lloyd et al., 1994).

In the words of Farrell and Pease, "The aspirations to model crime prevention strategy on the research reported may be seen as grandiose and premature. The reasons for repeats are diverse, the data on repeat victimisation is incomplete, and the range of techniques to combat it are not fully elaborated" (1993, p. 28). Nonetheless, while it is still in an early stage of development, and applications have not been extensively evaluated, this British work appears to have major implications both for crime control and for victim services. It also raises interesting questions for activity theory: while prompt and frequent revictimization might be expected in domestic violence and some other non-stranger crimes, the findings on residential and non-residential burglary, on theft of and from cars, and on crimes against business are less easy to understand. How much is to be explained by victim behaviour, target characteristics, situational factors, and offender behaviour? If a substantial amount of crime results from offenders repeatedly offending against the same target (Anderson et al., 1995), do these crimes represent an exception to activity theory principles, or are they perhaps examples of them in their purest form?

Victimization risk self-assessment instruments

There is a need for a victimization risk self-assessment instrument which will make use of the sorts of risk factors discussed in activity theory. The instrument would be used by recent crime victims, as well as by the general public. While victim advocates are quite sensitive to anything that might seem to 'blame the victim', research shows that victims are often very willing to blame themselves (Janoff-Bulman and Frieze, 1983). There is something very affecting about this finding; it suggests that victims are desperate for a sense of control, for an assurance that it will not happen to them again. Telling themselves that the harm resulted from something that they did wrong allows victims to put themselves back in control - at least in their own minds. Unfortunately, too frequently victims will blame themselves in ways that neither hasten their recovery nor reduce the odds against revictimization. A victimization risk self-assessment could help victims form a more realistic picture of their situation, and of what they can do to increase their safety.

On the subject of victimization risk, Cohen and Felson (1979) and Fattah (1991) remind us that increased risk may be a by-product of increased freedom, prosperity, and opportunity, in the form of a nicer house,
bigger car, better job, vacations, more education, more possessions, etc. For example, many of these increase time spent outside the household, which increases risk (except in the case of domestic violence victims; Maxfield, 1987; Finkelhor and Asdigian, 1995). Fattah (1991) suggests a useful approach when he compares risk assessments in victimization and in illness; self-assessments of risk have been used successfully in combatting heart disease. Made available in doctor's offices and in the media, individuals calculate an overall risk score based on factors such as family health history, age, diet, gender, weight, serum cholesterol, physical activity, use of tobacco, life stress, personality type, etcetera. The risk factors in these tables, and the weights assigned to each, were determined based on research and actuarial data. Simply completing the form is educational in directing attention to what the risk factors are, the weights assigned to each, and how important it is to take full advantage of factors that one has some control over. For example, a middle-aged male with a sedentary job and a father who died young of a heart attack would quickly realize that he had better do all he can about smoking, diet, weight, exercise, self-administered stress, etcetera. Creators of a risk assessment instrument for victims would not have access to data of the quality that the cardiologists have. However, a version for CD ROM could incorporate crime rate information, by Zip code, for the person's home, school, place of employment, etcetera, and thus could be tailored to individual risk patterns to some extent. The weights for other risk factors could be approximated from available research and data from work in activity theory and victimology. A CD ROM version could also incorporate pictures and film clips to clarify assessment questions, and to provide some incidental education and crime prevention tips where appropriate. Simpler versions could be self-administered using a touch-tone telephone, or paper-and-pencil.

Elements of a risk self-assessment instrument

The instrument at present does not exist even as a prototype, but as developed it would be based on elements from activity theory and victimology that have been reviewed earlier in this article. Creating an inventory of these elements can be accomplished rather readily; a first attempt is presented below. The much greater challenge is the actuarial determination of the numerical weights to assign to each element so that a specific victimization risk profile and assessment can be calculated for each person. This paper will not attempt completion of the latter task, even in rudimentary form.
Personal
- Age, gender, marital status, height and weight, handicap(s) if any, address, number and ages of persons in household, employment status.
- Occupation, nature of duties (handle cash, deal with public, travel, etcetera), location of school or employer, transportation to school or work.

Dwelling and car
- House locks, alarms, ground-floor entrances, lighting, visibility, formal and informal surveillance, hours empty.
- Car make/year/model, security where parked (home, work), alarm, type stereo, cellular phone.
- Gun(s) in home.

Security practices
- House locking, use of occupancy surrogates, locking of guns, locking of car.
- Displaying and securing of jewelry and expensive personal items.
- Frequency of use of ATM machines.
- Seeking out of information on current crimes and scams. Investigating, before participating in, free offers, fabulous bargains, hot investment tips, etcetera.6

Activities and behaviours
- Use of alcohol and drugs, nights out per week, time spent in bars, dance halls, and sporting events.
- Number of sexual partners in reference period, use of prostitutes, patronizing of adult entertainment/pornography.
- Close friends and associates' gang membership, contacts with police, delinquency/criminal records, delinquent/criminal activity, carrying of weapons.
- Respondent's gang membership, contacts with police, delinquency/criminal record, delinquent/criminal activity, carrying of weapons.
- Respondent's serious arguments and fights in reference period, number requiring medical attention.

6 Titus et al. (1995) found that fraud victimization was negatively correlated with the respondent's knowledge of, and prior investigation of, offers, deals, etcetera.
Victimizations in reference period

- Number, type of crime, repeat victimization or not.
- Stranger or nonstranger offender(s).
- Reported to police, police action, offender in custody?

A victim debriefing instrument

This instrument gets into more sensitive material than a generalized risk assessment. It asks the victim to review the events that led up to the victimization, and to assess his/her decisions and behaviours at a number of stages prior to the crime. The instrument would branch to different series of questions, depending on the type of crime. In a CD ROM version, one might incorporate a film clip of a scenario such as the following. A young male meets a group of single male acquaintances, accepts a ride to a rowdy bar, participates in 'shouting' (Homel and Clark, 1994), feels tipsy and argumentative but has no ride and cannot leave, becomes involved in competition for a female, exchanges words with a possessive male, initiates shoving, displays a weapon, and gets badly beaten or worse. Such an example would make the point that the farther along the sequence one goes, the more there is an air of inevitability to the outcome. The aim would be to move the victim's threat assessment decisions to stages earlier in the sequence, where attempts to break out of it are much more likely to succeed.

By guiding the victim through the events that culminated in his/her own victimization, the debriefing instrument would hope to produce for the victim a more realistic idea of what changes in behaviour would be most productive of greater safety in the future, as well as a more appropriate assessment of his/her involvement in the outcome. Because these are self-assessments, the victim is free to stop if at any time it becomes too upsetting. Most of the key elements of a debriefing instrument have already been discussed above in the victimization risk self-assessment instrument; with minor changes in wording they could be used for debriefing. For illustration, if the victimization was a form of assault, the programme would present questions like the following:

Questions about planning

- Describe the place and the activity you were engaged in at the time of the victimization. What did you know about this place/activity before going there? Had you been there/done it before? Had you received any warnings about it? Did you know of prior problems in that place/activity? Did you consider it to be risky?
— Did you consider other ways to accomplish what you wanted without going to that place or engaging in that activity?
— Whose idea was it? Did you participate willingly?

The situation
— Time of day, day of week. Was it light or dark?
— Number and characteristics of persons present.
— Were you alone? If accompanied, characteristics of those with you.
— Were you/your companions under the influence of alcohol or drugs?
— Were you/your companions carrying weapons?
— Had you/your companions had prior interactions with the offender(s)? What was the nature of these interactions?

Just before the incident
— Did you notice anything ‘funny’? Did you have a ‘feeling’ or other sense that maybe there was an element of threat?
— At that time, were there things that you still could have done to escape or avoid what followed?
— Did your companion(s)/others present impede or worsen the developing situation?

The incident itself
— Who was the first to: Raise his voice? Use insulting gestures or speech? Make threats? Touch or push? Strike? Show a weapon? Use a weapon?
— Did you perceive opportunities to de-escalate the violence?
— What was your reaction to those opportunities?

Aftermath of the incident
— Do you expect that there will be consequences to this incident or a possible continuation of it?
— Who will initiate them?
— What are your plans concerning these possible consequences?

The programme will present choices to each question such that answers can be entered using a mouse or keyboard. At the completion, the programme will use intelligent systems logic to present the victim with an analysis of his/her behaviour, suggest alternative approaches where indicated, suggest actions that can be taken in the future, and present a listing of sources of help and how to contact and utilize them.
Concluding remarks

This paper has argued that activity theory could bring the victim back into criminology, but that it has not done so yet. It is difficult to understand why activity theory, and criminology, would decide to deal with the problem of crime by devoting so much of their time and attention to the criminal, and so little to the victim. Every crime requires an offender as well as a victim, but victims do not intend to become victims, while offenders do intend to commit crime, given the opportunity. Logic would thus suggest that victims offer a more promising population for us to work with than we seem to realize. Moreover, the motivation-reduction efforts directed at offenders deal with areas of psychology, political science, economics, and social work that are quite far removed from the expertise of most criminologists. Because its focus was on victims, the paper has not dealt with important situational variables such as environmental design and management, but attention to such situational factors could also be more productive than the current rather exclusive absorption with offenders.

The paper noted that the phenomenon of repeat victimization appears to deserve additional attention from both researchers and practitioners. The need for development of victim self-assessment instruments for risk and behaviour was discussed and two examples were sketched out.

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Routine activities and social control in the aftermath of a natural catastrophe

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On August 24, 1992 Hurricane Andrew made landfall in South Dade County on the southern tip of Florida. Within one hour, the storm's 165 mile per hour winds destroyed over 65,000 homes and did an estimated $30 billion in damages. Over a million residents were without electricity, telephone service, and water. In the towns of Homestead and Florida City and in Dade County, neighbourhoods such as Kendall (250,000 population) virtually all businesses were destroyed, seriously damaged, or were unable to open due to loss of electrical power. The storm blew down tens of thousands of trees, electrical power poles, power lines, and traffic signals. Thousands of cars were damaged or destroyed by blowing debris and falling trees. Travel was severely restricted due to danger from downed power lines and lost traffic signals.

Loss of formal social control

The area also suffered almost complete breakdown of formal social control. Commencing immediately after the hurricane struck, police and fire service were curtailed. Residents were advised by radio and television that once the hurricane actually struck, there would be no police or fire service until the storm passed. After the storm passed, police and fire service was limited to 'life-threatening' emergencies. In the small city of Homestead, hardest hit by the storm, several police patrol cars were destroyed by the winds and falling trees and buildings. Neither police or residents had telephone service, exacerbating the

1 The first two being from the University of Miami, the latter two from the University of Florida.
situation. Even if police had been able to respond, loss of telephone service prevented their being contacted. Damage to radio and microwave transmission towers in the area resulted in severe reductions in the ability of police to communicate with each other by car or handheld radios. The cellular (or mobile) telephone system also went down and remained out of service for two weeks.

The Miami Herald, on August 28, six days after Andrew, carried a news story with the headline, 'Swamped Metro Officers only handling emergencies'. The story reported that the police department was responding only to emergency calls, stating: 'House burgled while you were away from home? Don't call Metro-Dade Police. They can't come.'

Barton's (1969) classic work on disaster proposed that disaster situations can be viewed as laboratories for sociological research and theory construction. Others have since reminded us that natural disasters such as Hurricane Andrew present 'unique laboratories (...) [and] ethically acceptable natural experiments for sociological research' (Drabek, 1986, p. 420). It does not diminish the appreciation of the dimensions of the disaster as a human tragedy to conduct research at the site to learn something about its effect on society. We report findings here from exploratory research on the impact of Hurricane Andrew on formal and informal social control.

**Routine activities and crime**

Cohen and Felson's routine activities theory (1979) guided our research and helped to make sense of the findings. Although we do make some assessments of how well our qualitative data conform to the general expectations of the theory, we do not have the kind of data that allows for, and we make no claims about, 'testing' the theory. Rather we use it to help raise questions and interpret findings.

Cohen and Felson (1979) hypothesized that the volume and distribution of predatory crime was related to the interaction of three 'minimal elements' that reflect the routine activities of everyday life: the availability of suitable targets; the absence of capable guardians; the presence of motivated offenders. These minimal elements must converge in time and space for a crime to occur. Routine activities theory contends that opportunity is socially structured; that social behaviour such as lifestyle and certain personal characteristics places some individuals and groups at greater risk of victimization. Those who stay out late at night, have frequent activities outside the home, and who frequent areas with high crime rates are most likely to become victims.
The principles of routine activities theory have found support in studies of homicide (Messner and Tardiff, 1985), burglary (Cohen et al., 1980; Cromwell et al., 1991), rape (Maume, 1989), victimization of youth (Lasley, 1989), victimization of families composed of single parents (Maxfield, 1987), and many others. The theory and research on it has directed attention less to the nature and characteristics of the motivated offender and more on how everyday or 'routine activities' in the general population increase the risk of victimization or present opportunities for these offenders to commit predatory crimes. There was nothing 'routine' about Hurricane Andrew or of other natural catastrophes. Nevertheless, the routine activities perspective raises relevant questions with regard to Hurricane Andrew (and other natural disasters) and the three categories of variables in the theory – motivated offenders, vulnerable targets, and capable guardians. In fact, the unusual circumstances encountered in the aftermath of this event provide a rare research opportunity to determine whether routine activities holds under extreme circumstances: where the formal system of social control (official guardianship) has broken down; where an influx of persons from the outside increases the pool of potential offenders; where prospective targets are most vulnerable.

The destruction brought on by a large-scale disaster has the capacity to increase crime by increasing the vulnerability of both persons and places to victimization and by rendering guardians less capable or fewer in number. On the other hand, the hurricane may have also altered the ability of offenders to take advantage of the situation. If so, the actual amount of criminal activity may be temporarily depressed or some crimes might go up while others go down. If informal social control efforts in the neighbourhoods provided capable guardians in the absence of formal law enforcement, such crimes as looting and burglary might be controlled while fraud and price-gouging for which the informal mechanisms were not intended to control might increase. Did crime increase or decrease in Andrew's path? If so, what types of crime were affected and to what extent were residential neighbourhoods crime targets compared to commercial property? To what extent were residents victims of already criminally motivated offenders taking advantage of the situation or of offenders whose criminal motivation was initiated by the disaster situation? In light of the recent spate of disasters, such as the Hurricanes Andrew and Hugo, earthquakes, floods, fires, and riots in California, and the floods in the midwest, understanding how crime, and criminal justice respond to such events is of critical importance.
Methods

Timely movement is required to gather the data for addressing the questions. To move into the disaster area immediately to collect such data, however, presents an ethical dilemma for researchers. The immediate need is so great that it would be unconscionable not to lay down the interview pad and assist in the relief effort. Research is not ethically possible at that time. However, we began our research in the hurricane-affected area in October, 1992 and continued into January, 1993, which seemed to allow enough time to elapse for the immediate urgency and emergency to abate. At the same time, the events following the hurricane striking were fresh enough to be reported accurately by the residents and law enforcement personnel, and the concerns about the hurricane were still relevant enough to provide some motivation for cooperation by respondents in answering questions and providing information.

The primary data collection technique was semi-structured interviews with residents of the neighbourhoods in the destructive path of the hurricane (n=101) and with police officers and officials from the affected area and those who came to the area to assist in the aftermath of the storm (n=60). Additionally, individuals arrested for hurricane-related offences were interviewed in the Dade County Pre-Trial Detention Centre (n=10). The responses were anonymous and confidential.

The research was qualitative and exploratory. In the months following Hurricane Andrew it was impossible to adhere to any 'normal' sampling procedure. Over 25,000 homes in the target area were totally destroyed and another 50,000 were severely damaged. Residents of the hurricane damage zone were living in temporary shelters, with friends, in damaged home, in 'tent cities', or had made other temporary living arrangements. We were therefore limited to a convenience sample. For the resident surveys, we selected areas in the hurricane damage zone with emphasis on geographic representativeness and included areas that were hardest hit as well as those less damaged. Interviewers then went into these areas and approached available and agreeable individuals.

The police respondents came from 15 police departments with the majority (n=37) from the departments in the hardest hit area. We asked the operational commander/coordinator of the law enforcement efforts in the hardest hit area (Homestead) to distribute self-completing survey instruments to officers who had been assigned there during the early days and weeks of the storm. He attempted to insure that representatives of every police agency involved received a questionnaire. We did not
identify the agencies or the officer completing the survey in order to obtain the greatest return rate and the most valid replies. The completed surveys were returned directly to the researchers.

We obtained the offender surveys from several individuals arrested in the hurricane damage area in the days and weeks after the storm. These respondents were those who agreed to talk with us when they were approached in the Dade County Jail. We obtained 10 completed surveys from this source. We make no claim to representativeness and recognize that generalizability is limited. Nonetheless, the consistency among the responses of our different groups of respondents and the areal coverage of our interviews gives us some confidence that our exploratory findings are sound and provide a good basis for future, more systematic research.

The law enforcement instrument concentrated on the response and operation of law and formal social control agents. This included questions on the extent to which normal police practices and procedures were maintained, disrupted, or ceased to function, increase or decrease in crime and victimization, and on officer's observations and perceptions of the extent to which governmental and police agencies relied on such groups.

Findings

We analyzed the data by looking at the three variables of routine activities: motivated offenders, suitable targets, and absence of capable guardians.

Motivated offenders

Obtaining verifiable crime data for the days immediately after the storm was impossible. Police were engaged primarily in assisting storm victims. Few arrests were made and few crimes were reported by citizens who had no telephone service. In the first 48 hours following the passage of Hurricane Andrew through the ravaged area, only the most hard-core criminals or local juvenile offenders sought out criminal opportunities. The nature and extent of the destruction in the hardest hit areas modified the opportunity structure. No one was immune from storm damage. Survival became the first priority of virtually everyone in those first few days. Police respondents reported that local adolescents committed the majority of reported offence in the first hours and days after the storm passed. These young offenders, unlike virtually every adult in the affect-
ed areas, were not otherwise engaged in 'digging out', the new routine activity in the area. Many of these adolescents roamed the devastated area searching out criminal opportunities, primarily looting damaged stores and businesses. One respondent, speaking of the first few days after the storm, stated: 'I think they were thieves from the local area who found an opportunity to take things they've never had. Also local kids with nothing constructive to do were involved in crime'.

Both citizen and police respondents, however, agreed that once the initial shock of the storm had passed, the opportunities presented by the mass destruction brought about a mass influx of individuals motivated to take advantage of the situation. Price-gouging became a major problem in the area. Some individuals rented trucks and hauled badly needed ice from locations untouched by the storm. Many of these persons sold ice out of the back of the truck for as much as $5.00 per 10 pound bag. Chain saws, generators, and plywood for repairing caved-in walls and roofs were sold for many times their original cost. These 'white-collar' offenders were mostly out-of-town entrepreneurs taking advantage of the situation. Typical reactions from respondents included: 'Others had problems getting food because the prices were so high. 1 lb. of ice cost $5'; 'There was price-gouging on ice, food, and generators (...) we went to buy a generator and had to pay $2000 for a value of $600'; 'There were many attempts of price-gouging by rip-off contractors and people just trying to make a dollar on our unfortunate situation'.

Respondents reported that these offenders were: '(...) scam artists [who] were price-gouging and rip-off contractors who came to take advantage of us in our time of need'; 'The local people at the beginning and then like a week later others started in to take advantage'. Another noted the difference between looters and price gougers: 'The looters lived in the community, but the scam artists came from other communities'.

Within two weeks after the storm passed, a third category of offender emerged. There was an influx of persons from the outside with moderate to high levels of criminal motivation: out-of-town marginal construction workers and fly-by-night contractors, easy money con-artists, drifters, and others. Some of the contractors did shoddy work with low-grade materials and quickly moved on, or simply took the money from a job and left without doing any work at all. They found many suitable targets among desperate people in need of house repair or otherwise vulnerable to fraud. Both police and citizen respondents commented on the crimes attributable to these individuals: 'I think the main problem came from the workers who came to the area to work on the roofs and construction.
They would get drunk, get into fights, and create problems'; '(...) but the builders and workers would loot anything from an old pair of shoes to plants'; 'We did have some construction workers steal from our house'; 'I think the first looters were from the area, but later after seeing the [situation reported on] TV, looters from other areas came down to cash in'.

A Miami Herald story, four months after the hurricane, reported that hundreds of temporary workmen had set up camp in the upper Florida Keys (near the hurricane ravaged area). Many of these persons were involved in criminal activity. Police coined the term 'roofers from hell' to describe the criminal element among them. During a drug sting in the area, 58 of 60 people who bought crack cocaine from undercover officers were found to be out-of-town construction workers. The story also reported numerous incidents of violent crime and property crime attributable to the transient workers, stating that the State Attorney's Office in Key Largo reported a threefold increase in felony filings in December 1993 over the same period a year earlier (Keating, 1993).

We also noted that since most of the local schools were destroyed or severely damaged, the area also had to contend with thousands of youths with little to keep them occupied as television, movies, and other distractions were unavailable due to the storm damage. This increased the pool of potential offenders as well as potential victims.

**Suitable targets**

The areas most affected by Hurricane Andrew provided an unprecedented number of 'suitable targets'. It was virtually impossible to maintain physical security in most homes and businesses. Over 25,000 home were completely destroyed, littering their contents across a wide area. Walls, windows, fences, and roofs were fully or partially destroyed in most remaining homes. Seventy-five thousand homes were without telephone service. Commercial establishments were both damaged and abandoned as owners tended to their families and homes. Within a few weeks after the storm, insurance claims agents converged by the hundreds on the area and began writing large partial settlement checks to their policyholders. Because the local banks were unable to open – damage and loss of electrical power – cash was the most reliable method of payment for goods and services in the area. A large number of cash carrying homeowners created another source of suitable targets.
Guardianship

With large numbers of motivated offenders and many suitable targets available to them, routine activities theory predicts that crime will increase in the absence of capable guardians. Guardians may be formal, such as police, guards, private security, or others employed for the purpose of providing security and protection from crime, or may be informal, such as the presence of the occupants of a house, or the existence of 'nosy neighbours' who watch over a neighbourhood or street. Formal guardianship essentially disappeared in most of the areas heavily damaged by the storm. Roads were blocked by fallen trees, power poles and lines, and other storm debris. Citizens could not report criminal acts or suspicious persons due to almost complete communication breakdown. Telephone service, including the cellular system, went down early in the storm and remained down from two weeks to several months. Citizens could not rely on the police for normal law enforcement services for periods of time ranging from a few days to a few weeks, depending upon the damage suffered in the jurisdiction.

Both police and citizen respondents agreed that neighbourhood social solidarity increased in the hurricane ravaged areas and that informal social controls formed almost immediately. People were drawn together in mutual aid and protection. Even in neighbourhoods which had been essentially collections of strangers prior to the storm, solidarity grew after the storm. The common loss and danger from the storm increased social cohesion and a sense of belonging and responsibility for one another. The following are typical comments from the citizen surveys: 'We united with our neighbours (...) We all looked out for each other as friends and neighbours'; 'We became close after the storm. We really didn't know each other before'; 'It was a cohesive group helping (...) The neighbours checked on each other'; 'Everyone has been overwhelmingly good. [The common danger] has been great for the neighbourhood. It has brought neighbours together'.

As a corollary to this heightened sense of mutual dependence and social cohesion, an informal system of control came into operation almost immediately to guard property and help maintain order during the time when local law enforcement was hampered and before the National Guard and other emergency military units arrived. The informal social control system was a combination of self-reliance and mutual aid. Almost all respondents reported that citizen patrols formed almost immediately, looking out not only for their own property, but the property of absent neighbours. The actions were seen as needed in the
absence of formal guardianship such as the police. They were not planned ahead of time, but rather were more or less spontaneously taken as a response to the perceived breakdown in formal law and order. Respondents reported: ‘In the first few days our neighbourhood went on watches and patrols to make up for the lack of police patrols’; ‘When neighbours were looking out for other neighbours’ property it was helpful to the police and military because they couldn’t be in all places at all times’; ‘In the first few days no authorities were around, so residents had to do it. I think it was OK with the police for people to do that’; ‘A neighbour rigged a light with a battery and two neighbours kept watch over the immediate area’; ‘We did most of the work and the authorities would come only if there was a life-threatening emergency. We were the police and the Red Cross for the first three days’; ‘There wasn’t any disorder; it was well-organized. We took care of ourselves. The immediate neighbourhood pulled together’.

Police respondents also reported that neighbours banded together to provide mutual aid and protection. Typical responses included: ‘Neighbourhood crime watch was very strong. It was common to arrive at a call with 6 or 7 neighbours holding a suspect [for the officer]’; ‘By and large (...) people tended to arm themselves and protect their own or band with neighbours to protect areas’; ‘A lot of individuals got together and provided traffic control at major intersections in neighbourhoods (...) neighbourhood watch, too’.

Interestingly, in the less damaged areas where there did not appear to be an absence or breakdown in formal control or guardianship, there was no or very limited informal efforts: ‘The neighbours did not organize to guard against crime. Everyone felt safe before the storm and after. The police presence did not break down’; ‘The National Guard did it for us. There was no need to protect ourselves’.

Law enforcement respondents were generally strongly supportive of the emergence of informal guardianship, including the widespread reliance on personal firearms for protection. Two thirds (n=40) of the police respondents reported being in favour, while less than seven percent (n=4) had unfavourable opinions about citizens arming themselves in these circumstances. The remaining 27 percent (n=16) did not express an opinion on this issue. The following comments are illustrative: ‘I feel that citizens arming themselves helped prevent wholesale anarchy from occurring. I supported it, practiced it, and recommended it’; ‘I believe the criminals realized they had a better chance of being shot and killed after the storm than before. The citizens’ fear became their strength’; ‘I would have to support the fact that citizens armed themselves. I would
have armed myself to protect what property I had left'; ‘I support them arming themselves. Without phones they couldn't call for I don't know whether the department officially or unofficially sanctions this activity. Florida law, however, states that a person has the right to be armed and protect himself on his own property'; ‘I saw citizens standing on their property with guns and signs warning that looters would be shot. I believed them and I think the criminals did too'.

A few police officers expressed concern or displeasure with citizens arming themselves. Responses included the following: 'A firearm in the hands of a citizen who has not received proper training is more dangerous than in the hands of a criminal. Armed citizens make it hard to distinguish the bad guys'; 'Police "wannabes" of every variety took to the streets – activities included patrols in personal vehicles, spray-painting antagonistic "looters stay out" warnings on their homes, wearing of firearms on their persons while at residence'.

As noted by both civilians and police respondents, firearms served as much a symbolic as a direct deterrent. There were few actual instances where a crime was actually thwarted by the threat or actual use of a gun. Related to the possession of guns for protection purposes were the 'You loot and I'll shoot' signs in evidence everywhere, many painted on damaged walls of homes. These were frequently filmed by television crews and pictured in newspapers. There were mixed feelings about these signs from the respondents. Some thought the signs were worthwhile and added a certain element of warning and deterrence to potential looters: 'Yes, there were many "loot and shoot" signs. I saw them and even wrote that on my house. Its a good idea because it learns them not to loot'; 'There were a few signs. It was a good idea because most looters aren't professionals and are scared to take risks'.

Other respondents felt the signs were unnecessary and ill-advised: 'It is unnecessary to have those signs because the criminals can tell if people are living in the homes'; 'I think the signs are stupid because if they want to steal something they will steal regardless of a sign (...)'.

While police respondents were not asked specifically about the 'loot and shoot' signs, one command level officer told the interviewer: 'Those signs were symbolic of guardianship and territoriality. They gave looters a message, “this property is mine and I’ll defend it.” I think they were a good idea'.

Of course, the fact that most people stayed at home for a few days to a few weeks after the storm, repairing their property and serving as their own guardians, probably played the greatest role in reducing crime in the aftermath. Furthermore, the vastly increased outdoor activity
provided more 'eyes on the street' to combat crime. Without electricity houses were hot and uncomfortable, and dark after sundown. People congregated outside, cooking on outdoor grills and visiting with their neighbours. With no television or air conditioning, neighbourhoods became active and people got to know their neighbours.

Conclusion

Without the ability to take crime calls, police statistics can't tell us much about the actual increase or decrease in crime following the storm. The best available evidence suggests that crime actually went down in the weeks after the storm in the hardest hit areas. In Homestead, the hardest hit community, police statistics reflect a sharp reduction in both Part I and II crimes in September, October and November of 1992 compared to the same period the two previous years (excluding curfew violation arrests). Our analysis will assume a reduction in crime for the period. Then how do we go about analyzing and understanding such a drop in crime in the aftermath of Hurricane Andrew?

Our findings suggest that while the supply of motivated offenders and vulnerable targets increased, the level of guardianship also increased. Significantly, the level of formal guardianship (police and other official agencies of social control) decreased in the days and weeks immediately after the storm. The loss of formal social control was more than offset by an increase in informal guardianship – maintenance of order and control of deviance by families, friendship groups, neighbourhoods, and other primary and secondary groups in the community.

This finding is consistent with Donald Black's theory of the behaviour of law, which states that 'Law varies inversely with other social control' (Black, 1976, p. 6). This means not only that 'law is stronger where other social control is weaker', but inversely, other social control is stronger when law becomes weaker (Black, 1976, p. 107). Black referred to the relationship between law and informal social control under ordinary conditions of social life. Our findings suggest that the anticipated relationship between formal and informal control also hold under the extraordinary conditions caused by catastrophic events. Thus, guardianship which usually consists of both formal and informal efforts became primarily informal – neighbours helping neighbours. The individual and neighbourhood sense of territoriality increased significantly. Offenders apparently sensed the new level of guardianship. One told us: 'People were really sensitive about they houses and streets. Almost everytime I got off my own block, someone was yelling at me 'bout did I belong
there. It made me real uncomfortable'; Another offender respondent said: 'People was walking around with guns and flashlights like they was Rambo or somethin'. I was scared of getting shot'.

The Brantinghams (1993, p. 12) have argued that criminals construct a 'template' of a suitable target – a mental model that helps identify and label a particular kind of object, place or situation. They use this template as a mental shortcut to assess potential crime targets. They write, 'The templates are not a simple list of easily identifiable and measurable characteristics, but more a holistic image with a complex interaction of pasts and relationships seen from varying perspectives' (p. 12). Interviews with police, citizens and offender respondents clearly revealed that neighbourhoods in the storm-ravaged areas became less attractive to potential criminals. Places once considered attractive crime targets were, for a time after the storm seen as unlikely places to commit crimes. One offender respondent stated that he left the area because he did not feel comfortable doing crime there anymore: 'Used to do [commit burglaries] around here all the time. Place changed after Andrew. Went to north Dade [out of the hurricane damaged area] 'til people here got back to normal'.

In summary, while each of the routine activities variables plays a role in the criminal event, in conditions such as found in the aftermath of a natural catastrophe such as Hurricane Andrew, guardianship is the strongest predictor of crime. We recognize that the situation was extreme and suggest further research where similar circumstances are found.

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Danger, distance, and desirability

Perceptions of inner city neighbourhoods

Mark Mattson, George Rengert

City officials spend millions of dollars each year to attract users to urban facilities. They use catch phrases such as 'clean it and they will come' to encourage communities to improve the physical appearance of neighbourhoods which contain these public and private facilities (Liedman, 1991). They are attempting to counter the current perception that our city centres are crime-ridden dangerous places to visit, shop, or work. The attempt is to make city centre locations desirable places to spend time and money.

Desirability is a subjective concept. However, there are some generalities between people. Most people find safe environments more desirable for most purposes. We say most purposes since the only time a person would prefer a dangerous environment over a safe one is if the purpose of experiencing the environment is to experience the danger and/or the excitement of conquering the danger as in mountain climbing. Or, if the satisfaction of the experience outweighs the potential danger involved as in cigarette smoking. On the other hand, when the environment is used to accomplish a task unrelated to it, any complications in the environment, such as danger, will be considered a nuisance to be overcome. For example, we most commonly use our environments in order to travel from one place to another. If our path is blocked and we are forced to take a detour, we usually experience anger and frustration since we are forced to perceive or be cognizant of an unfamiliar environment. In other words, the environment usually is perceived as an obstacle to be passed over in the shortest, easiest manner possible (Zipf, 1949). Given two alternative routes to cross an environment, we generally choose the route we perceive to be the shortest and quickest. Therefore, for every-

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day purposes, shortest routes are the most desirable routes. Distance can be measured objectively and over- or under-estimated subjectively. For example, we tend to under-estimate distance along familiar routes that we travel on a routine basis while we over-estimate distances in unfamiliar environments. For example, Lee (1970) discovered that shoppers more accurately estimate distances toward the city centre shopping district than in the opposite direction. Routes which have many turning points or traffic lights where decisions are required are perceived as longer than straight routes where few decisions are required (Briggs, 1972; Sadalla and Magel, 1980). Similarly, routes through dangerous environments where the traveller must constantly be alert are perceived as longer than tranquil routes through safe environments (Mattson, 1995).

There is a vast literature focused on danger and the closely related concept of fear. Fear is more subjective than danger since one does not necessarily experience fear in a clearly dangerous environment. In fact, one may experience exhilaration as in the dangerous sports of skydiving, car racing, or even speeding on the highway. Danger also can be measured objectively as the proportion of people exposed to a particular situation or environment who experience serious injury or death. This exposure may be an occupation as in a high steel worker who builds bridges or in a pleasurable activity such as smoking or using dangerous drugs. In any case, we have objective statistics on the proportion of exposed persons who experience harm.

Danger can also be subjective as when a person over- or under-estimates the proportion of exposed people who experience harm. For example, Rengert and Greene (1994) demonstrated that recruits hired to patrol the central part of Philadelphia incorrectly perceived danger to be associated with the ethnic group residing in the area they were considering. He also discovered that women perceived central Philadelphia to be less dangerous than their fellow male recruits. This finding runs counter to a long line of previous research which contends that women and the elderly perceive regions beyond their residential environment as more dangerous than other social groups (Bardwick, 1972; DuBow et al., 1979; Taylor and Hale, 1986).

Fear is the subjective counterpart of danger. One can be fearful in a completely safe environment. For example, when individuals first step onto the observation deck of a very tall building they commonly experience fear although hardly anyone has experienced accidental harm in so doing. Therefore, it is not a dangerous experience although it can be frightening. At the other extreme, few people experience fear
when they smoke a cigarette although the experience is potentially dangerous. Therefore, although both concepts can be subjective, danger can be measured objectively in a group of people. In other words, fear varies from person to person in a given environment or situation while actual danger remains constant at a given point in time and space. On the other hand, fear is an objective reality to an individual who may over- or under-estimate the danger in a situation.

Keep in mind that one important determinant of perceived distance is the fear we perceive in using the route (Werner and Wapner, 1955; Mattson, 1995). What is important here is perception. Whether or not a route is actually longer than an alternative is of no account if it is perceived as longer. Therefore, if our policy is to increase the use of a given site, we should focus our attention on the perceived rather than the actual distance to the site. This can be accomplished by making the route straighter, safer, and therefore more desirable. Furthermore, people feel more responsibility for locations they perceive to be close to themselves than for locations they perceive as being farther away (Mattson, 1995). They will take more pride and care of close locations for which they feel a sense of proprietary right. Therefore, the perceived distance a facility is located from people not only affects how often they are likely to use it, but also the pride and responsibility they are likely to feel toward its upkeep and ultimate success.

These ideas are illustrated in the following empirical research where two facilities are evaluated in terms of the perceived distance to each. The city of Philadelphia owns both and has a considerable financial stake in their successful operation. We will focus especially on those factors which tend to distort the perceived from the actual distance to each site and therefore the likely long term financial success of each facility.

The data and study area

This study is centred at 34th Street and Poweltown Avenue in west Philadelphia. It extends for one mile north to the Philadelphia Zoo and one mile south to the Philadelphia Civic Center. This is the divide between two diametrically opposed neighbourhoods. To walk to the zoo, one must pass through Mantua, a threatening neighbourhood. It is populated by an urban underclass that resides in a stock of disintegrating houses within a crumbling infrastructure. To walk to the civic centre, one must pass through University City which features science centres, university halls, high-rise dormitories, and open space for athletics and recreation. Within one mile, neighbourhoods and the perceptual
attitudes associated with them change dramatically. The inherent differences between Mantua and University City provide a wide range of perceived danger and distance responses.

One of the authors administered 200 questionnaires on the corner of 34th Street and Poweltown Avenue (Mattson, 1995). There were no criteria for those who responded. Participants entered our records on a first-come-first-served basis as they passed on the sidewalk. The questionnaire was used to gather information about respondents and their perceptions about danger, fear, and distance in the study areas. The responses resulted in 179 usable questionnaires. The study area allows us to hold constant the actual distance and danger (same objective distance to each destination, same environmental risks available for all to experience) so that we can focus on the variation in perceived values.

We are assuming that objective danger is the violent crime that occurs in each neighbourhood; objective distance is the mile to each destination; the objective characteristics of each destination are those associated with a nationally recognized zoo and the varied attractions of a civic centre. In the following analysis, we will determine the relationship of perceived distance to perceived danger (referred to as fear), which are determinants of the use people make of these various environments.

The analysis

The first relationship we wish to establish is between fear and bad experiences in the neighbourhoods of the zoo and the civic centre. Each respondent was asked to identify the bad experiences they had encountered toward the zoo and toward the civic centre. Table 1 summarizes

<table>
<thead>
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<th>category</th>
<th>respondents having bad experiences</th>
<th>percent of all respondents in category</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>civic centre</td>
<td>zoo</td>
</tr>
<tr>
<td>male</td>
<td>42</td>
<td>127</td>
</tr>
<tr>
<td>female</td>
<td>49</td>
<td>71</td>
</tr>
<tr>
<td>white</td>
<td>95</td>
<td>134</td>
</tr>
<tr>
<td>non-white</td>
<td>40</td>
<td>64</td>
</tr>
<tr>
<td>resident</td>
<td>145</td>
<td>147</td>
</tr>
<tr>
<td>non-resident</td>
<td>37</td>
<td>51</td>
</tr>
<tr>
<td>mean percent</td>
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</tbody>
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this by sex, ethnicity, and whether or not the respondent resided in the study area. Notice that nearly all respondents had bad experiences toward the zoo while only 67 percent had bad experiences toward the civic centre. Figure 1 shows that every component of the sample also perceives the direction toward the zoo as more fearful than toward the civic centre. Finally, figure 2 shows that when the data are pooled for both directions, there is a strong linear relationship between bad
Figure 2: Bad experiences and fear

![Graph showing the relationship between bad experiences in neighbourhoods and fear. The equation y = 1.2950x + 1.9080 and the correlation coefficient r = 0.9828 are indicated.]

experiences and fear of the neighbourhoods. Clearly, bad experiences are associated with fear of these communities. However, fear is not the only theoretical reason to expect respondents to avoid a journey through a neighbourhood. If the purpose of a journey is to reach a destination, it is a well-established geographic principle that there is an inverse relationship between the number of people who undertake a journey and the journey's perceived distance (Haynes and Fotheringham, 1985). When objective topological features such as physical barriers and turns in the path are held constant, we expect perceived distance to be related to perceived danger or fear (Werner and Wapner, 1955). Figure 3 (p. 76) shows that all respondents perceived the distance to the zoo to be greater than the objectively equal distance to the civic centre. Figure 4 (p. 77) illustrates that there is a strong linear relationship between perceived distance and fear. Clearly, respondents perceived distance to be greater when they perceived the journey to be through a dangerous neighbourhood.

Discussion

The literature is very consistent concerning the fact that people avoid clearly dangerous environments in their journey to a destination (Smith,
It also is well established that the number of people who use a facility decreases with increasing distance (Haynes and Fotheringham, 1985). What has not been established before is that crime along with related negative experiences, has a multiplier effect on people's use of an environment: not only does it increase their sense of fear, but it also impacts their perception of how far away the facility is located.
Therefore, their choice of whether to use a facility is only partially determined by their fear of the journey, distance, and the desirability of the destination. Also important is that the distance perception is over-estimated if the journey is perceived to be through a dangerous fearful environment. Therefore, the public use of a neighbourhood or facility can be expected to increase if the safety level improves not only because it is perceived as being less dangerous, but also because it will be perceived as being closer to the potential user. Furthermore, the closer the facility is perceived to be, the more responsibility people are likely to feel in its long-term success. In other words, they are more likely to feel that it is theirs. Since the facilities discussed in this study are owned by the city of Philadelphia, the citizens of the city truly are the owners and are more likely to feel a responsibility toward each if it is perceived to be located closer to them.
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Theft from cars: reduced or displaced?

René Hesseling

Over the last decade situational prevention has been an important part of Dutch crime prevention policy, and many programmes have proved to be successful in reducing crime (Ministry of Justice, 1990; Willemse, 1995). As our theoretical and empirical knowledge of the effects of situational prevention has grown, we now know that this type of crime prevention may have two side-effects (Clarke, 1992; Clarke and Weisburd, 1994; Hesseling, 1994). Firstly, the reduction in crime in a programme area may go hand in hand with some form of displacement to other targets, times, places, methods or offences. Secondly, the intervention may also reduce crime in areas adjacent to the programme or for other targets. Thus the opposite of displacement occurs, a phenomenon known as diffusion of benefits.

Although displacement is usually limited in extent and scope it nevertheless limits the effects of crime prevention programmes. Furthermore, some forms of displacement could be considered as malign, for example, when offenders switch from non-violent to violent methods (Barr and Pease, 1992). So one should always be aware of the danger that some preventive measures or programmes may result in displacement.

The issue of displacement was also one of the reasons for evaluating a programme to reduce theft from cars in the inner city of Rotterdam. During the planning of the programme several critics stated that it would merely displace crime to other areas or to other offences. For example, one of the participants in the programme, the Chamber of Commerce, feared that offenders would switch to robbing shopkeepers. Whether the programme led to displacement is the main topic of this paper. The findings are based on the evaluation carried out by the Research and Documentation Centre of the Ministry of Justice (Hesseling and Aron, forthcoming).

1 Research and Documentation Centre, Ministry of Justice, PO Box 20301, 2500 EH The Hague, The Netherlands.
The programme

The programme was a response to increased theft from cars in Rotterdam. In 1988 for example 17,250 thefts from cars were reported to the police, while in 1991 this number had increased to almost 20,000. Statistics further show that almost 40 percent of the offences took place in the inner city. It was therefore decided to start the programme in this part of the city.\footnote{Rotterdam has a population of almost 600,000. The inner city is an area of 2.3 km\textsuperscript{2} with approximately 15,000 residents.} The programme began in January 1992 and it will last for four years (1992-1995). Several preventive and repressive measures have been taken over the period. During the first two years (1992-1993) the following measures were implemented simultaneously.

First, there was increased surveillance by the police at ten 'hot spots'. These hot spots were in public areas in the inner city where the number of thefts from cars had been relatively high for some years. The surveillance was performed by so-called police surveillants. Police surveillants are members of the regular police force and wear the same uniform as other police officers; they have full powers, but do not carry fire arms. They perform duties for which less specialized training or knowledge is necessary and which do not involve great risks or uncertainties (e.g. surveillance in public space or traffic control). During the programme the police would invest 10 man-hour per week/location. In the evaluation study it was found that the actual presence of the police surveillants varied in time and between the hot spots. In the first year of the programme (1992) the average number of man-hours invested was six and in 1993 this rose to eleven hours per hot spot. Because the surveillance was usually done in pairs the actual presence of the police at the hot spots varied between 4.3 and 6.8 hours per week/location in the research period.

Second, in 1992 and 1993 a small car park (Willemsplein) with 156 places near a tourist attraction was guarded from April until October. The car park was guarded by employees for seven days a week between 11 am and 7 pm. Besides watching over the car park, the employees also provided some services to the public.

Third, the police surveillants provided written advice to car owners who parked their cars in the hot spots in a risky manner (e.g. by leaving the door unlocked). All victims of theft from cars in the inner city also received this advice when they reported the crime to the police. The advice consisted of various suggestions for preventing theft from cars,
Table 1: Number of arrests and the percentage of offenders taken into custody by precinct in the period February-July 1992 and the period January-June 1993

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>inner city</td>
<td>182</td>
<td>61</td>
<td>277</td>
<td>83</td>
</tr>
<tr>
<td>North</td>
<td>101</td>
<td>48</td>
<td>96</td>
<td>74</td>
</tr>
<tr>
<td>East</td>
<td>57</td>
<td>63</td>
<td>67</td>
<td>73</td>
</tr>
<tr>
<td>West</td>
<td>82</td>
<td>20</td>
<td>125</td>
<td>34</td>
</tr>
<tr>
<td>South</td>
<td>49</td>
<td>47</td>
<td>41</td>
<td>24</td>
</tr>
<tr>
<td>Grijs*</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>total</td>
<td>471</td>
<td>50</td>
<td>606</td>
<td>66</td>
</tr>
</tbody>
</table>

Arrest data for the Grijs precinct were not available.

and a map with the location of the ten safest car parks in the inner city. A survey revealed that 67 percent of the car owners and 64 percent of the victims read the information. Furthermore, 42 percent of the victims and 30 percent of the car owners who read the information, took measures to prevent theft from cars. Finally, special attention was paid to the offenders of theft from cars. After arrest offenders were usually released when the official report for the public prosecutor had been made. During the programme, however, offenders of theft from cars were taken into custody immediately. It was believed that the detention of offenders would have a deterrent effect. In February 1992 it was decided this pre-trial detention should be extended from the inner city to all six precincts in the city. The results of the evaluation show, however, that the practice has not been fully implemented. Table 1 shows that almost half of the arrests for theft from cars in Rotterdam took place in the inner city. There is a striking 56% increase in arrests in the inner city between 1992 and 1993. In West the number of arrests has also increased substantially (52%). The figures also show that in the inner city the number of offenders taken into custody had been the highest of all precincts. The evaluation showed that during 1992-1993 several preventive and repressive measures were taken to reduce the number of theft from cars.

3 In the Netherlands this is possible up to a maximum of three days. To keep an offender longer into custody before a trial special permission is needed by the examining magistrate or the Council Chamber.
Theft from cars: reduced or displaced?

in the inner city of Rotterdam. Furthermore, in 1993 surveillance increased and more offenders were taken into custody than in 1992. Did the programme lead to a reduction of theft from cars, and if so did it result in any form of displacement?

Data

To answer these questions two sources of data were used. First, computerized police data on crime was gathered for the period 1988-1993. For most analyses the data was aggregated on an annual basis for the different geographical units of analyses (the car park, the hot spots, the precincts). We used data for six years (four pre-programme and two programme years) because several studies have shown that the use of short periods does not give a reliable picture of the effects of crime prevention. Secondly, 81 offenders arrested for theft from cars were interviewed March - October 1993. The interviews were held at two police stations and at the public prosecutor’s office. In the interviews the offenders were asked what kind of offences they usually commit, how they committed theft from cars, whether they had noticed any aspect of the programme and how they would react if committing theft from cars in the inner city became too difficult. The results of the interviews were complemented by information from their police records. We cannot say whether the offender sample is fully representative. Furthermore, we are aware of the problem that the offenders answers are not always valid (see, e.g., Cromwell et al., 1991). Despite these limitations we believe that the results provide valuable information about the reactions of offenders.

4 The sample comprised two women and 79 men. The mean age was 32 years, with a range of 16 to 48 years. Thirty percent of the offenders were of Dutch origin, 23 percent came from Morocco, while another 23 percent came from the Dutch Antilles or Surinam. The remaining offenders came from elsewhere. Most offenders had a very low educational attainment. Sixty-four percent received social security payments, usually supplemented by income from illegal activities or charity. The others did not have social security and got their income solely through crime. Fifty-nine offenders had no settled home during the interviews. All except two of the offenders were addicted to hard drugs. Almost 60 percent started using drugs before the age of 21. All respondents can be labelled as habitual offenders. On average they had a criminal record for 11 years prior to the study. Furthermore, over 80 percent of the offenders committed four or more types of offence. Despite this versatility many offenders stated during the interviews that they preferred committing certain offences. Theft from cars and shoplifting were the most favoured offences, 49 percent and 23 percent of the respondents respectively, preferred committing these offences. The others mentioned dealing in drugs (10%), burglary (6%), petty theft (5%), robbery (1%) or prostitution (1%).
Table 2: Recorded theft from cars by precinct from 1988 to 1993

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>inner city</td>
<td>6,266</td>
<td>5,936</td>
<td>6,006</td>
<td>7,773</td>
<td>8,688</td>
<td>7,806</td>
</tr>
<tr>
<td>North</td>
<td>2,397</td>
<td>1,780</td>
<td>1,939</td>
<td>2,210</td>
<td>2,837</td>
<td>2,945</td>
</tr>
<tr>
<td>West</td>
<td>3,501</td>
<td>3,378</td>
<td>3,542</td>
<td>3,800</td>
<td>3,872</td>
<td>4,024</td>
</tr>
<tr>
<td>East</td>
<td>1,609</td>
<td>1,187</td>
<td>1,157</td>
<td>1,745</td>
<td>2,926</td>
<td>1,777</td>
</tr>
<tr>
<td>South</td>
<td>1,587</td>
<td>1,394</td>
<td>1,287</td>
<td>1,614</td>
<td>1,846</td>
<td>1,902</td>
</tr>
<tr>
<td>Grijs</td>
<td>1,890</td>
<td>1,730</td>
<td>1,585</td>
<td>2,657</td>
<td>2,660</td>
<td>3,135</td>
</tr>
<tr>
<td>total</td>
<td>17,250</td>
<td>15,405</td>
<td>15,516</td>
<td>19,799</td>
<td>22,829</td>
<td>21,589</td>
</tr>
</tbody>
</table>

Table 3: Relative changes in theft from cars since 1991 by precinct

<table>
<thead>
<tr>
<th>precinct</th>
<th>1992</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>inner city</td>
<td>+12%</td>
<td>0%</td>
</tr>
<tr>
<td>North</td>
<td>+28%</td>
<td>+33%</td>
</tr>
<tr>
<td>West</td>
<td>+2%</td>
<td>+6%</td>
</tr>
<tr>
<td>East</td>
<td>+68%</td>
<td>+2%</td>
</tr>
<tr>
<td>South</td>
<td>+14%</td>
<td>+18%</td>
</tr>
<tr>
<td>Grijs</td>
<td>0%</td>
<td>+18%</td>
</tr>
</tbody>
</table>

Changes in theft from cars

Table 2 presents the number of recorded thefts from cars for each precinct from 1988 to 1993. The figures show that in the North, West, South and Grijs precincts the number of recorded thefts from cars in 1992 and 1993 was higher than in the period 1988-1991. In the inner city and in East the number of offences in 1992 was also higher than in the previous period. However, in 1993 there was a substantial reduction in the figure for the inner city (882 offences) and East (1,149 offences). Furthermore, the relative changes in the inner city can be considered as favourable compared to the other precincts since 1991 (table 3). Finally, it can be seen from table 2 that since 1991 the overall rate of increase in thefts from cars in Rotterdam has slowed.

It is clear from these figures that the programme had no effect in 1992. Despite the measures thefts from cars in the inner city increased by 12 percent in 1992. In 1993 however there is a substantial reduction in both the inner city and in East. We saw that in 1993 more offenders were arrested and taken into custody in the inner city and that the surveil-
Theft from cars: reduced or displaced?

Table 4: Recorded theft from cars for the 10 hot spots and the other parts of the inner city from 1988 to 1993

<table>
<thead>
<tr>
<th></th>
<th>pre-programme years</th>
<th>programme years</th>
</tr>
</thead>
<tbody>
<tr>
<td>hot spots</td>
<td>874</td>
<td>1,004</td>
</tr>
<tr>
<td>other parts of the inner city</td>
<td>5,392</td>
<td>4,932</td>
</tr>
</tbody>
</table>

Table 5: Recorded theft from cars for the parking lot Willemsplein from 1988 to 1993

<table>
<thead>
<tr>
<th></th>
<th>pre-programme years</th>
<th>programme years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st quarter</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2nd quarter</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>3rd quarter</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>4th quarter</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>total</td>
<td>23</td>
<td>34</td>
</tr>
</tbody>
</table>

The balance of the hot spots intensified. This suggests the possibility of a slow but progressive influence of the programme. Subsequent analyses show, however, that the surveillance of the ten hot spots and the guarding of the Willemsplein car park had not been effective. Table 4 presents the figures for the hot spots. From 1988 to 1992 the number of recorded offences rose continuously in the hot spots; in 1993 there was a small fall. The reduction in the hot spots is, however, relatively small (2.5%) compared to the rest of the inner city (11.6%). If the surveillance had been effective the reduction in theft from cars should have been largest in the hot spots.

The Willemsplein car park was guarded only from April to October. For the analyses we therefore used quarterly periods (table 5). The figures show first that the absolute number of recorded offences is small. Secondly, on the basis of the second and third quarter of each year, no reduction of the number of thefts from cars took place in 1992 and 1993. It can be concluded that the extra surveillance of the hot spots and the car park had no effect on the level of theft from cars in 1992 and 1993. This outcome is unexpected, but corresponds with the findings of the interviews with the 81 offenders.
Offender Interviews

In the interviews, offenders were asked if they noticed the extra surveillance in the inner city. Some did not, but most (68 percent, n=59) said that the surveillance and control of the police had increased. However the evidence of increased surveillance which they offered included other factors in addition to the programme: more police patrolling by car or bike; the police speaking more often to the offenders on the streets; and increased levels of social control by residents and bystanders. Some offenders said that they were deterred by the higher levels of perceived surveillance and control. They refrained from committing theft from cars or they reduced the frequency with which they offended. Most offenders, however, still perceived enough opportunities to commit theft from cars. Surveillance and control were not seen as continuous, letting offenders choose the place and time to offend. This kind of displacement is very restricted in time and/or space and takes the form of 'going around the corner'.

Further analyses for the Willemsplein car park showed a slight shift to the hours when the guard was off duty (7 pm to 11 am). From the evaluation we know that the actual presence of the police surveillants on the hot spots varied between 4.3 and 6.8 hours a week. Although theft from cars may have been prevented during the hours of surveillance, the presence of the police surveillants had been too limited to reduce the number of offences. Thus, these findings imply that surveillance itself is not necessarily an effective means to prevent crime, but that it will be effective only when it is intense enough (Polder and Van Vlaardingen, 1992).

Whether the advice given to the car owners and victims (to prevent repeat victimization) had a preventive impact cannot be established independently from the crime statistics, given the other measures in the inner city. So we had to rely on the views of offenders on this issue. Some stated that giving information was useless. They said that there was an abundance of cars and it was always possible to find one with goods to be stolen. Other offenders thought that giving advice was effective. They noticed that more owners removed valuables from parked cars which led to a reduction in the number of attractive targets. Given this finding it is safe to assume that this measure had some effect on theft.

5 This suggests that it is very hard in practice to make a distinction between the specific measures of a project and the more general changes in the policies of the police or other relevant authorities.
from cars, although this effect cannot be quantified in this study. The new policy of taking perpetrators of theft from cars into custody immediately was noticed by most offenders (85 percent, n=60). This is not a real surprise, because it is this part of the programme they experienced directly. In general, however, this approach had hardly any deterrent effect, at least for the 81 offenders we interviewed. With a few exceptions (see also footnote 4, p. 82) all offenders were hard drug addicts with a long criminal history, and being arrested was just a part of their lifestyle. Most offenders stated, in different terms, that they would continue offending. These claims were confirmed by police records. The interviews were completed in October 1993. During the first eight months of 1994, 69 of the 81 offenders were arrested again at least once by the police. Although the new policy had no deterrent effect, it had some incapacitative effect. More offenders were taken into custody than previously and the evaluation shows (see also table 1) that this was especially the case in the inner city. Despite these answers the interviews also revealed that a lot of offenders thought that theft from cars had become more difficult in the inner city. They still managed to do so, but this required more energy, time and effort.

Although theft from cars declined in 1993 in the inner city the findings of the offender study raise the important question whether the programme had been effective or not. This question also stems from the fact that in the East precinct the number of recorded theft from cars also declined in 1993 substantially. We believe that a simple yes or no does not apply. On the one hand most offenders continued committing theft from cars, but on the other they stated that it had become increasingly difficult to do so. In this sense we believe that the measures of the programme, especially the increased detention of offenders in the inner city, contributed to a situation in which theft from cars has become more difficult.

Displacement

According to the interviewed offenders, theft from cars became more difficult in the inner city, and the programme contributed to this situation. Arguably, therefore, a necessary condition for displacement had been fulfilled. Our next question is whether this side-effect did indeed occur. The answer partly depends on the kind of definition one uses for displacement (see also Barnes, 1995). Firstly, displacement can be seen
Table 6: Change in theft from cars between 1992 and 1993 by precinct

<table>
<thead>
<tr>
<th>precinct</th>
<th>offences</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>inner city</td>
<td>-882</td>
<td>-10</td>
</tr>
<tr>
<td>North</td>
<td>108</td>
<td>+4</td>
</tr>
<tr>
<td>West</td>
<td>152</td>
<td>+4</td>
</tr>
<tr>
<td>East</td>
<td>-1149</td>
<td>-40</td>
</tr>
<tr>
<td>South</td>
<td>56</td>
<td>+3</td>
</tr>
<tr>
<td>Grijs</td>
<td>475</td>
<td>+18</td>
</tr>
</tbody>
</table>

as a response of an individual offender. The offender is prevented from committing one offence and then commits another one instead. This could be in other areas, at other times or even a different type of offence. Secondly, displacement can be defined as a general shift in the pattern of crime due to situational prevention. For example, crime decreases in the programme area but increases elsewhere. It is clear that this kind of displacement implies that individual offenders have been displaced. In this study we have been primarily interested in displacement as an aggregate side-effect of crime prevention.

Reppetto's (1976) classification of five forms of displacement is well known. Most authors acknowledge nowadays that the different forms may occur in combination, and that it may be impossible to measure all forms of displacement. It is, however, not always necessary to do so. Dependent on the type and range of the measures, the offences, and offenders, some forms of displacement are more likely to occur than others (Hesseling, 1994, pp. 43-47). Theft from cars has become more difficult in the inner city. Furthermore, we believe that the success of the programme in 1993 can be attributed mainly to the pre-trial detention of more offenders. So we assumed that crime would either be displaced to other precincts or to other types of offences for which the new policy did not apply.

Spatial displacement

The analyses have been restricted to 1993. Table 6 presents the change in the number of recorded thefts from cars between 1992 and 1993. The number of offences decreased substantially in the East Precinct. In the

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6 In theory it is possible that a lot of individuals are displaced without any consequences for the pattern of crime in time and space.
North, West, South and Grijs precincts theft from cars increased. This increase could be the result of a spatial displacement. Judging by what the research on the offenders revealed, however, a general shift to other precincts due to the programme seems implausible. Although the offenders were willing to look for, or went to other locations within the inner city, most of them stated that they would keep on working in their usual area. Despite the fact that it had become more difficult, it still remained possible to commit theft from cars in the inner city. Furthermore, some were reluctant to look for targets in unfamiliar areas, while others mentioned that criminal addicts are tied to the inner city as the place where stolen goods can be sold and drugs bought.

The findings from the interviews are supported by the police records. On the basis of the theft from cars admitted to the police we compared the working area of the 81 offenders before and during the programme (table 7). From table 7 it is clear that during 1989-1991 most offences had been committed in the inner city. Most other working areas were in West and North Precincts. It is worth mentioning that until the end of 1994 a major drug market was located at the point where these three precincts met. Thus it can be assumed that the working area of the offenders was strongly related to the presence of this drug market.

If spatial displacement occurs, offenders are most likely displaced to areas familiar to them (Eck, 1993). In our case this implies that the offenders would have been displaced to the West and North. The figures show, however, that the working area of the 81 offenders has hardly changed since the start of the programme. During the programme even fewer offences were committed in West Precinct by the 81 offenders. Thus, it can be concluded that at least these offenders were not displaced to the other precincts. It might also be the reason why the increase of theft from cars in West and North is only a fraction (260/882 = 29%) of the reduction in the inner city (table 6). Although it does not prove the absence of spatial displacement, we firmly believe that during the programme theft from cars has not been spatially displaced and that

### Table 7: The 81 offenders' working area for theft from cars before and during the programme

<table>
<thead>
<tr>
<th>Years</th>
<th>Precinct</th>
<th>North</th>
<th>West</th>
<th>East</th>
<th>South</th>
<th>Grijs</th>
<th>Number of Offences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989-1991</td>
<td>Inner City</td>
<td>51%</td>
<td>19%</td>
<td>24%</td>
<td>3%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>1993-1994</td>
<td>Inner City</td>
<td>53%</td>
<td>18%</td>
<td>18%</td>
<td>7%</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Table 8: Change in four types of offences between 1992 and 1993 by precinct

<table>
<thead>
<tr>
<th>offence</th>
<th>inner city</th>
<th>North</th>
<th>West</th>
<th>East</th>
<th>South</th>
<th>Grijs</th>
</tr>
</thead>
<tbody>
<tr>
<td>larceny</td>
<td>-669</td>
<td>702</td>
<td>229</td>
<td>-208</td>
<td>53</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>-10%</td>
<td>34%</td>
<td>7%</td>
<td>-7%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>aggravated theft</td>
<td>989</td>
<td>798</td>
<td>203</td>
<td>670</td>
<td>848</td>
<td>357</td>
</tr>
<tr>
<td></td>
<td>42%</td>
<td>52%</td>
<td>7%</td>
<td>34%</td>
<td>40%</td>
<td>14%</td>
</tr>
<tr>
<td>residential burglary</td>
<td>87</td>
<td>425</td>
<td>396</td>
<td>112</td>
<td>418</td>
<td>803</td>
</tr>
<tr>
<td></td>
<td>14%</td>
<td>37%</td>
<td>22%</td>
<td>9%</td>
<td>43%</td>
<td>73%</td>
</tr>
<tr>
<td>theft with violence</td>
<td>149</td>
<td>79</td>
<td>5</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>23%</td>
<td>35%</td>
<td>1%</td>
<td>16%</td>
<td>17%</td>
<td>13%</td>
</tr>
</tbody>
</table>

the rise in the various precincts resulted from the overall increase in theft from cars since 1988.

Functional displacement

Similar analyses have been performed to see whether some functional displacement occurred during the programme. First of all, we looked at the crime statistics for four types of offence (table 8): larceny, residential burglary, aggravated theft and theft with violence (e.g. robbery). In 1993 the number of larcenies decreased in the inner city, while the increase in residential burglary was less steep than in most precincts. The rise of larceny in the North and of residential burglary in Grijs is striking. Aggravated theft and theft with violence have increased most in the inner city and in North. Again we are left with the question as to whether these changes could be caused by the programme.

The study showed that the interviewed offenders could be labelled as generalists (see also note 4, p.82). During their criminal career they committed several types of offences. Thus in theory it should be relatively easy for them to switch to other offences if committing theft from cars became too difficult. Many offenders also stated during the interviews that they would turn, or had turned to other offences when they were prevented from committing their offence of choice. Strictly speaking this can be labelled as displacement at the level of individual offenders. Nevertheless, we did not have the impression that most offenders would switch to another type of crime permanently. Switching from one type of crime to another is more part of the continuous effort to acquire income through criminal behaviour: 'if this doesn't work, we try something else'.
The police records show that the kind of offences admitted to the police slightly changed during the programme for the 81 offenders (table 9). During the programme the offenders admitted more aggravated thefts to the police as compared to the period before the programme. This finding could be indicative of displacement to this type of crime. It should be stressed, however, that during the interviews the offenders also mentioned the fact that theft from cars had become less lucrative. According to the offenders the value of stolen goods had been depressed by the sheer volume of thefts from cars. Despite this alternative explanation, we believe that the increase of aggravated theft in the inner city or North is partly caused by a displacement effect of the programme.

Conclusion

Theft from cars became more difficult in the inner city, and the programme contributed to this situation. Therefore, displacement might have occurred. In Rotterdam spatial and functional displacement had been a common reaction when the offenders were prevented from committing offences, at least for the offenders in the sample, and it should be stressed that we have been dealing with a highly committed and versatile group of offenders. This displacement was, however, part of their usual style of offending. They seek other targets around the corner, wait for a suitable moment or switch to other offences. It is this kind of displacement that offsets the impact of preventive measures with a restricted coverage in time and space, like the surveillance of hot spots in Rotterdam. This kind of displacement does not, however, imply that the pattern of crime changes in a larger area. For example, we do not believe that the increase of theft from cars in other precincts can be explained by a spatial displacement. Although
theft from cars became more difficult to commit in the inner city, it did not become impossible. Furthermore, most offenders had no reason to leave their usual working area because switching to other offences is, given their background, probably easier than finding a new and unfamiliar area for committing theft from cars. This explanation also implies that the increase in aggravated theft in the inner city is partly caused by a functional displacement.

This study demonstrates again how difficult it is to confirm or refute empirically the presence or size of displacement at an aggregate level (e.g. precincts). Furthermore, it confirms the view that examining crime rates in areas adjacent to a programme or for other offences is not enough to study displacement. Both theory and the use of a variety of data sources are necessary to gain a better understanding of the phenomenon.

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Exploring relations between crime and disadvantage on Merseyside

A. Hirschfield, K.J. Bowers and P.J.B. Brown

Introduction

This paper sets out some of the conceptual and methodological issues underpinning a two-year study into relations between crime and disadvantage in Merseyside, northwest England. The study forms part of the British Economic and Social Research Council's (ESRC) Crime and Social Order Research Programme; a five-year initiative with resources of 2.1 million pounds funding 21 separate projects (ESRC, 1994).

Merseyside, which comprises the City of Liverpool and the four surrounding metropolitan districts, has a population of 1.4 million and is renowned for being an area of chronic unemployment and acute poverty and has relatively high levels of violent crime. The decision to focus the research on Merseyside can be justified on two grounds. Firstly, as one of the most deprived urban regions in the European Union, in which the full range of deprived residential neighbourhoods is represented, it provides a good testing ground for the research hypotheses concerned with crime and disadvantage. Secondly, and of equal importance, is the availability, in Merseyside, of a wide range of spatially referenced data sets (e.g. digital street networks, computerized crime records and command and control incidents) which can be cross-referenced to

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produce valuable insights into relations between crime, land use and social conditions.

**Conceptual overview**

The causal processes responsible for crime are currently at the forefront of public and political debate. One issue which has come to prominence is that of the nature of the relations between crime and disadvantage. A broad political consensus now seems to be emerging that important contributory causes to rising crime can be found in social and cultural changes, in particular, a decline in moral standards and collapse in family values and community spirit. On the other hand, the research literature demonstrates clearly that there are strong links between deprivation and certain types of crime, in particular, property offences and violent crime (Block, 1979; Curry and Spurgel, 1988).

In Britain, attention has been drawn to the high concentration of offenders on deprived council estates and in 'twilight areas' characterized by private-renting and New Commonwealth immigrants (Baldwin and Bottoms, 1976). Herbert (1977) linked delinquency and crime in Cardiff to an unholy alliance of income poverty, social deprivation, substandard housing and 'unfavourable' values and social attitudes. In a review of geographical analyses of residential burglary, Evans (1989) identified social class and tenure, physical features of the property and social cohesion as the leading risk factors.

The higher perceived and actual crime risks in certain types of disadvantaged residential area is confirmed by the British Crime Survey (Mayhew et al., 1993).

Since the mid-1980s, discussion has focused on relations between high rates of crime and the growth of socially excluded and marginalized groups in the inner city, particularly in the North American context (Wilson, 1987; Taylor and Covington, 1988).

Growing social divides and the emergence of the so-called underclass has also been discussed in the British context (Field, 1989; Walker and Walker, 1989) although there is an absence of systematic research which examines relations between crime and areas characterized by extreme deprivation and increased social polarization. Indeed, Smith (1989) argues that there are major gaps in our knowledge of what constitutes urban crime.

Braithwaite (1979) cites some factors that are potentially responsible for the ecological association between crime and disadvantage: high population density and overcrowding, high levels of residential mobility...
leading to social disorganization and a breakdown in formal social control, the inadequacy of recreational and educational facilities in such areas and the effects of labelling and stigmatization. It is possible to expand this list by adding issues such as segregation and social polarization and the spatial configuration of disadvantaged areas and more prosperous neighbourhoods (spatial relations).

Study objectives

The Merseyside study is in the process of examining the importance of segregation, spatial relations and the absence of social cohesion in explaining relations between crime and disadvantage. The study has three main objectives: to investigate relations between crime and the spatial segregation of deprived people; to examine the extent to which crime risks (i.e. in terms of being a victim or an offender) are greater where disadvantaged areas either directly border or are in close proximity to affluent areas; to identify the extent to which crime in disadvantaged areas is attributable to a lack of social cohesion.

Segregation is important because there is a growing body of evidence to suggest that, the more a city tends to segregate and isolate its poor from the rest of the community, the higher the crime rate (Braithwaite, 1979; Wilson, 1987). The project is seeking to investigate relations between segregation and spatial variations in the demand for police services (as measured by calls to the police) and its possible impact both on victimization and offending.

The second objective concerns the spatial relation between disadvantaged and affluent areas. Spatial relations (i.e. the spatial configuration of different types of neighbourhood) may be one of the more important variables in explaining the relation between crime and disadvantage. The temptation for crime may be greater when deprived people are in daily contact with affluence. The ultimate aim is to test the hypothesis that crime rates are higher where deprived areas either directly border affluent areas (where the contrast between 'the haves' and 'have-nots' is most visible), or are close to them. This is being examined by studying levels of crime in disadvantaged areas with varying degrees of contiguity to affluent neighbourhoods. This is an under-researched area, particularly in the British context.

The third objective concerns the relation between disadvantage and social cohesion. Areas which are socially disorganized and lack cohesion have disproportionately high rates of crime and delinquency (Sampson and Groves, 1989).
Several ecological and social processes create the conditions which can destroy cohesion and lead to disorganization. They include high population turnover, low socio-economic status (SES), social heterogeneity and family disruption (Bursik, 1988; Sampson and Groves, 1989). Population turnover is a disorganization risk factor because short-term residents are less likely to establish, or become involved in, either formal or informal arrangements which facilitate social control, while heterogeneity acts as a barrier to communication, reducing the ability of residents to 'solve common problems and reach common goals'. The positive correlation between SES and participation in formal and voluntary groups suggests that the more disadvantaged areas are also more likely to have a weaker organizational base and, thereby, be at greater risk of social disorganization.

The purpose in pursuing the social cohesion issue is to examine how far disadvantaged neighbourhoods are also disorganized (and incohesive) ones, and how far the two factors jointly impact upon crime. The other factors under examination, namely segregation and spatial relations, might usefully be added to the equation to test the hypothesis that highly segregated, socially disorganized, disadvantaged areas, which lie in close proximity to affluent neighbourhoods, will have the highest crime.

Although the main themes of the study are those of disadvantage, segregation, spatial relations and cohesion, a number of additional and inter-related issues can be identified. These include the crime risks associated with routine activities (Cohen and Felson, 1979) and the functions of different areas. The latter is important because particular areas may be devoted to different types of land use (residential development, retailing, industry, leisure, open space) and the activities and population profile of an area may vary considerably according to the day or time of day (Wikstrom, 1991). An attempt has been made to include these factors in the population profiles which have been produced for areas of high crime on Merseyside.

Data

A number of data sets have been assembled for the project. Some have been incorporated into geographical information systems (GIS) software for mapping, interrogation and display. Others have been stored separately and are being used to produce area profiles of high-crime areas and for investigating relations between crime, disadvantage and the social environment using multivariate statistical techniques.
Background data

The background or contextual data sets contained within the GIS are shown in figure 1. They include administrative boundaries and the
Merseyside street network in digital form, urban policy priority areas (e.g. police beats, Census enumeration districts, City Challenge areas), demographic and social indicators from the Population Census and residential neighbourhood classifications (i.e. 'geodemographic data') which delineate different types of affluent, middle-income and poor area.

The digital street network has been obtained from the Merseyside Address Referencing System (MARS), a comprehensive road network and property database, which forms the basis of the Command and Control and Crime Incident reporting system used by Merseyside Police.

The geodemographic data define residential neighbourhoods which are similar in terms of their demographic, socio-economic, ethnic and housing composition. The data set used in the project comes from the Super Profiles classification (Brown and Batey, 1994). This is a hierarchical classification which identifies up to 160 different types of neighbourhood at the most detailed level, 40 area types at the intermediate level and 10 at the broadest, most generalized level. The fact that Super Profiles identifies several different types of disadvantaged area is particularly important, given the multi-dimensional nature of disadvantage and its varied spatial manifestation (Hirschfield, 1994).

Data on calls to the police and recorded crime

Three years worth of grid-referenced 'command and control' records (calls to the police) have been acquired from the Merseyside Police. The data span the period from January 1992 to December 1994 and total approximately two million records (i.e. every call made to Merseyside Police over the period). Each record contains a 100-metre-grid reference, three codes identifying the type of incident, the date and the time of the report. There were 99 incident codes in this data set which were amalgamated into 8 broader categories for the research. These categories comprised burglary of domestic dwellings, all property crimes, robbery and theft from the person, sexual offences, minor disorder, serious disorder, assault and wounding and neighbour, domestic and civil disputes. Much of this information was also incorporated into the GIS.

Command and control data do not relate to crimes, since they are only telephone reports of incidents made by the public. It is, therefore, more precise to treat them as an indication of the demand for formal social control from the public.

A substantial amount of data has been ordered for use in the project from the Merseyside Police Integrated Criminal Justice System (ICJS).
This is a relational database comprising a series of data modules covering reported crime, prisoner processing, traffic accidents, stolen property and other topics. The system contains details of approximately 140,000 offences recorded each year and 60,000 cases of arrest. For each victim, there is a unique crime reference number, the date, time and category of offence, victim residential location, offence location (geocoded with a grid reference to an accuracy of 1 metre) and the age, sex, ethnicity and occupation of the victim.

Information on offenders includes category of offence, the age, sex and occupation of the offender and the offender's address and postcode. This particularly rich data set will be used later in the project to examine questions which will enable further insights to be gained into relations between victim, offence and offender location in Merseyside.

The inclusion of many of these data sets within a GIS, make it possible to select and combine items from any of the boxes in Figure 1 to produce maps of varying complexity. For example, maps can be produced showing the location of disorder incidents in relation to deprived areas, police beats, main roads, pubs and night clubs.

The creation of new data sets

Some data sets were created following preliminary analysis of the command and control data. For example, an initial analysis of calls to the police, concerning incidents against the person by time of day, revealed the inadequacy of using the residential population as the denominator for deriving crime incident rates. This led to the development of a population estimation model for deriving the number of persons present in each census tract or enumeration district (ED) during the day (08.00-17.59 hrs), evening (18.00-23.59 hrs) and at night (24.00-07.59 hrs). Further details of the methodology appear elsewhere (Hirschfield, 1995).

Other appropriate denominators were identified and used to construct crime rates. Examples include the number of residential properties, which has been used for deriving rates for burglaries of domestic dwellings, and the number of non-residential properties, used to construct rates for crimes against commercial/retail/industrial property. The new data sets were combined with existing information to form a comprehensive database containing information on demographic structure, land use and crime risks derived from geographically referenced data on calls to the police and recorded crime for each ED in Merseyside. This ED-level database was stored separately from the GIS. The informa-
tion was consolidated into the following topics; demography and land use, buildings prone to vandalism and disorder, high and low guardian-ship, disadvantage, social disorganization risk, neighbourhood type, victim/offender 'at risk' age groups and 1981-1991 change.

The demographic, land use and crime risk database served two purposes. It supplied the raw material for an area profiling programme which was developed specifically for the project. This enables demographic, land use and crime risk profiles to be produced for high-crime areas and for disadvantaged areas with below and above-average crime levels. It also provided the indicators which could be used to investigate the direction and strength of relations between crime and aspects of the local environment.

Methodology and selected results

General methodology

The analytical methods used in the study include a mixture of conventional multivariate techniques (e.g. multiple regression, principal components analysis), statistical tools designed specifically for analyzing spatial data and techniques for identifying spatial and temporal patterns in disaggregate crime data. With regard to the latter, the research has made use of Spatial and Temporal Analysis of Crime software (STAC), developed by the Illinois Criminal Justice Information Authority (Illinois Criminal Justice Information Authority, 1994). STAC, which comprises a time series analyzer and a spatial-analysis programme, can be used to locate spatial clusters or 'hot spots' of criminal activity. Geographical information systems have also been employed, primarily, to map crime 'hot spots' and to cross-reference crime data with information on social conditions, land use and infrastructure. This builds on previous experience acquired by members of the research team (Hirschfield, Brown and Todd, 1995).

The study has, effectively, adopted a dual-level approach in which relations between crime and disadvantage are being investigated using spatially aggregated data for small areas and, through more detailed analyses of the location of calls to the police and offences, using individual-level data. This is to be extended, in the final phase of the project, to include an analysis of relations between victim, offence and offender locations. A more detailed account of the study's methodology and of the results so far appears elsewhere (Hirschfield, Bowers and Brown, 1995).
Calls to the police

A number of relations have been examined between crime and disadvantage using 1.8 million records of calls to the police which span a three-year period from 1992 to 1994. The advantages and disadvantages of these data for crime analysis have been discussed at length elsewhere (Sherman et al., 1989; Warner and Pierce, 1993). A frequency analysis of the Merseyside data for each year revealed that just under one-fifth of all calls were about property crime (including burglary, car theft, criminal damage, arson), 16 percent were concerned with disorder (including serious disorder, domestic disputes, drunkenness, etcetera), 8.7 percent related to road traffic offences (accidents, poor driving) and 1.7 percent to crime against the person (assault, rape, homicide, robbery, etcetera).

The spatial concentration of callers was identified by calculating the Index of Segregation (IS) for each of the eight incident categories. The IS is a measure of the degree to which a subgroup within the population (e.g. persons calling the police) is segregated from the rest of the population (i.e. non-callers) and ranges from a value of 0 (total assimilation) to a maximum of 100 (total segregation).

The most highly segregated and locally contained problem on Merseyside was serious disorder (IS=85.2), followed by sexual offences (52.5) and robbery and theft from the person (51.9).

The most prevalent problem was domestic burglary (27.8), followed by neighbour disputes (33.6) and all property crime (33.7).

Police demand 'hot spots'

The geo-referenced calls data were submitted to the STAC software in order to generate standard deviational ellipses or 'hot spots' delineating areas of unusually high criminal activity. Forty-five maps were produced, some depicting hot spots by year of incident, others by season (i.e. for property crime and minor disorder) and in the case of assault, by time of day (i.e. daytime, evening and nighttime reports).

The hot spots were displayed in relation to the distribution of affluent and disadvantaged areas from the Super Profiles classification. A common feature on many of the maps was a tendency for the hot spots to coincide with a number of disadvantaged inner-city areas. There was also a marked degree of overlap between the distribution of hot spots over time for specific incidents and, to some extent, between those derived for different incidents. Some of these relations can be seen in
figure 2 which shows hot spots for burglary and those for assault in relation to affluent and disadvantaged areas. The core areas of high crime on Merseyside included Liverpool City, Bootle (just north of Liverpool), Huyton to the east of Liverpool and the town of Birkenhead on the Wirral peninsular to the west. Occasionally, hot spots appear in other areas for specific types of incident. For example, the coastal resort of Southport, central St. Helens, Norris Green in Liverpool and the municipal ‘overspill’ housing estates at Kikby seemed to be particularly prone to assault (figure 2).
Statistical profiles of crime 'hot spots'

A demographic, land use and crime risk profiling system (referred to as the profiler) was developed to enable more to be ascertained about high-crime areas delineated as 'hot spots' and disadvantaged areas with varying levels of crime. Maps which show the distribution of crime hot spots often convey interesting information. For example, hot spots may be large, small, ellipses or circles; they may be located in city centres or suburban areas; they may coincide with disadvantaged neighbourhoods; and they may overlap with each other which might be a finding of significance if the hot spots had been derived for different types of crime. However, the analysis of relations between areas of high crime and the social and physical environment and the ability to compare/rank different areas (e.g. burglary hot spots) requires more than simply a description of the size and spatial distribution of hot spots.

The profiler was developed to address these shortcomings and was written as a FORTRAN programme which produces aggregate statistics for any area within Merseyside defined by a series of grid references (e.g. the coordinates of a crime hot spot) or ED codes (e.g. EDs representing an area of disadvantage). Drawing upon information contained in the ED-level database (discussed above), the programme produces a 75-variable profile which includes the percentage of the population living within each Super Profile neighbourhood type, and changes in the residential population and labour force between 1981 and 1991 are also derived. The profiler also calculates and outputs, for the ellipse or area in question, the index of residential segregation for households without a car (a proxy for income poverty) and persons unemployed, the index of heterogeneity for ethnicity and social class (after Blau, 1977) and a series of social disorganization risk factors. These enable relations between crime, the segregation of disadvantaged people, socio-ethnic mix and social cohesion to be examined directly.

The utility of the profiler can be demonstrated by comparing conditions found within individual hot spots. Figure 3 shows the distribution of four hot spots for burglary of domestic dwellings derived from using six months worth of data on recorded crime. Table 1 lists a range of key statistics for the three smaller hot spots (numbered 2, 3 and 4, figure 3). Each of the hot spots had similar population sizes, although, Birkenhead had a significantly higher daytime population (i.e. persons present between 08.00 and 18.00 hours) and a larger built-up area. It also recorded the highest score on the two indicators of low guardianship (the percen-
tage of employed single people without children and shared dwellings) and two measures of social disorganization risk: recent migrants and ethnic heterogeneity. These factors might help to explain the higher rates for burglary, assault, sexual offence and minor disorder calls in Birkenhead compared with those for Bootle and Tranmere. Table 1 also indicates that there was a higher level of repeat victimizations in Birkenhead, with almost one-quarter of all burglaries being repeats.

The most uniformly disadvantaged area was Bootle, with over 90 percent of the population living in the most deprived neighbourhood cluster, the 'have-nots', and with 36.8 percent of persons aged 16-24 unemployed. Population density was also very high at 131 persons per hectare. This
Table 1: Statistical profiles of three hot spots for burglary of domestic dwellings (derived from recorded crime data)

<table>
<thead>
<tr>
<th>profile indicator</th>
<th>crime hot spot number and location</th>
<th>no. 2</th>
<th>no. 3</th>
<th>no. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>percentage and land use</td>
<td>Bootle</td>
<td>Tranmere</td>
<td>Birkenhead</td>
</tr>
<tr>
<td>residential population</td>
<td>16,893</td>
<td>15,684</td>
<td>16,941</td>
<td></td>
</tr>
<tr>
<td>daytime population</td>
<td>13,522</td>
<td>12,490</td>
<td>20,825</td>
<td></td>
</tr>
<tr>
<td>% of area: open space</td>
<td>63.0</td>
<td>73.9</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>% of area: built-up</td>
<td>36.3</td>
<td>26.1</td>
<td>86.5</td>
<td></td>
</tr>
<tr>
<td>unadjusted population density (per Ha)</td>
<td>47.8</td>
<td>16.9</td>
<td>72.2</td>
<td></td>
</tr>
<tr>
<td>adjusted population density (per Ha)</td>
<td>131.7</td>
<td>64.7</td>
<td>89.2</td>
<td></td>
</tr>
<tr>
<td>number of bars</td>
<td>16</td>
<td>12</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>guardianship</td>
<td>7.5</td>
<td>8.8</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>% population employed childless singles</td>
<td>0.7</td>
<td>1.8</td>
<td>3.4</td>
<td></td>
</tr>
</tbody>
</table>

| social disadvantage | 16.8 | 15.6 | 16.9 |
| social disorganisation risk | 13.5 | 20.8 | 26.0 |
| % recent migrants (1990-1991) | 9.8 | 9.9 | 12.0 |
| % population change (1981-1991) | -1.3 | -6.7 | -2.9 |
| % change economically active males | -8.5 | -16.1 | -10.1 |
| (1981-1991) | 3.6 | 4 | 1.2 |
| % residents non-white | 1.0 | 1.3 | 2.3 |
| ethnic heterogeneity index (max=1.0) | 0.01 | 0.02 | 0.04 |

| neighbourhood profile | 1 | 2 | 3 |
| percentage in affluent areas | 0.0 | 20.7 | 10.1 |
| percentage in middle-income areas | 1.1 | 36.7 | 37.0 |
| percentage in disadvantaged areas | 90.1 | 42.6 | 52.9 |

| crime profile | 1 | 2 | 3 |
| burglary calls p.a. | 392 | 355 | 488 |
| calls per 100 residential properties | 6.5 | 6.0 | 6.7 |
| assault calls p.a. | 105 | 105 | 100 |
| calls per 100 mean persons present | 0.66 | 0.74 | 0.91 |
| sexual offence calls p.a. | 15 | 10 | 20 |
| calls per 100 mean persons present | 0.10 | 0.07 | 0.16 |
| minor disorder calls p.a. | 1,160 | 999 | 1,565 |
| calls per 100 residential properties | 15.3 | 13.8 | 17.8 |
| likely repeat burglaries (% of total) | 21.1 | 20.3 | 24.6 |

1 Super Profile lifestyles 1-3.
2 Super Profile lifestyles 4-8.
3 Super Profile lifestyles 9-10.
only becomes apparent when the population is expressed per hectare of built-up area rather than per hectare of land area (compare rows 5 and 6, table 1).
The broad spread of disadvantage in Bootle was reflected in the lower overall level of spatial segregation between poor households (defined using the low income proxy 'households without a car') and the rest of the community (an IS value of 18.8). Poverty segregation was greater in Birkenhead and Tranmere which were less uniformly disadvantaged and contained a mixture of affluent, middle-income and disadvantaged areas. These were also the areas which had seen the heaviest population decline between 1981 and 1991 and the greatest loss of economically active males.
The profiler provides the data required for a more systematic analysis of relations between disadvantage, segregation, social disorganization risk and guardianship. This is to be carried out later in the research programme using additional data on recorded crime and offenders.

Comparative analysis of disadvantaged areas

At the present time, it is possible to compare, using the profiler, the spatial segregation of poor households, guardianship and social disorganization risk in areas characterized by similar types of disadvantage but varying levels of crime. Two areas of Merseyside were identified, both of which had similar population sizes and were contained entirely within lifestyle 10 (the 'have-nots'). Each area consisted of 14 EDs. One had a higher than average rate of calls to the police about dwelling burglary and the other, a below-average rate. Statistical profiles of these areas appear in table 2. In Bootle, where there is a high demand for police services, the index of segregation for households without a car (poverty segregation) was almost twice as high as in Norris Green. The segregation of unemployed people was also higher in the former. This would seem to support the hypothesis that crime tends to be higher where the deprived population is more segregated, although further, more systematic testing needs to be carried out using information on recorded crime to corroborate these results.
In addition, the relatively high crime area of Bootle had over twice the proportion of recent migrants in the population compared with Norris Green. It was also characterized by a greater ethnic mix, although, both areas had a high degree of social class heterogeneity. These observations indicate that there was possibly a greater degree of social cohesion in the
Table 2: Statistical profiles of disadvantaged areas with high and low levels of burglary

<table>
<thead>
<tr>
<th></th>
<th>disadvantaged and</th>
<th>disadvantaged and</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>low-crime</td>
<td>high-crime</td>
</tr>
<tr>
<td></td>
<td>Walton / Norris Green</td>
<td>Bootle</td>
</tr>
<tr>
<td>radius of area (metres)</td>
<td>1,175</td>
<td>1,020</td>
</tr>
<tr>
<td>residential population</td>
<td>7,694</td>
<td>7,693</td>
</tr>
<tr>
<td>% open space</td>
<td>16.8</td>
<td>82.1*</td>
</tr>
<tr>
<td>% built-up area</td>
<td>83.2*</td>
<td>17.9</td>
</tr>
<tr>
<td>segregation no car</td>
<td>9.55</td>
<td>17.14</td>
</tr>
<tr>
<td>segregation unemployed</td>
<td>8.59</td>
<td>10.71</td>
</tr>
<tr>
<td>% recent migrants</td>
<td>4.5</td>
<td>9.5 *</td>
</tr>
<tr>
<td>index of ethnic heterogeneity</td>
<td>0.009</td>
<td>0.032</td>
</tr>
<tr>
<td>index of social heterogeneity</td>
<td>0.864*</td>
<td>0.858*</td>
</tr>
<tr>
<td>% risk of calling**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>burglary</td>
<td>0.8</td>
<td>3.0*</td>
</tr>
<tr>
<td>all property</td>
<td>4.5</td>
<td>13.8*</td>
</tr>
<tr>
<td>minor disorder</td>
<td>5.3</td>
<td>10.9*</td>
</tr>
</tbody>
</table>

* Indicates the value is higher than the Merseyside average.
** Number of calls to the police p.a. per 100 residents.

disadvantaged area with 'low crime' (Norris Green) compared with the disadvantaged area of 'high crime' (Bootle) and is in line with the hypothesis that a lack of social cohesion could contribute to crime risks.

Geodemographic analysis

The results discussed so far have been mainly descriptive in nature. More detailed statistical analyses of differences in crime risks between areas were carried out using geodemographic classifications. The types of area which make the greatest demand for police assistance were identified by tabulating and analyzing calls to the police by category and location of incidents. The number of expected callers was calculated for each incident on the basis of population size and compared with the observed. The signed chi-square statistic was used to identify Super Profile lifestyles with a significantly higher or a significantly lower than expected number of callers for each incident. This builds on earlier research by members of the team using health data (Brown et al., 1991). The three types of residential neighbourhood with the greatest over-representation of calls contained one-third of Merseyside's population.
Table 3: Calls to Merseyside police (January 1, 1992 - December 31, 1994) by neighbourhood type

<table>
<thead>
<tr>
<th>Super Profiles lifestyle</th>
<th>significantly greater than expected number of callers</th>
<th>significantly fewer than expected number of callers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(a)</td>
<td>(b)</td>
</tr>
<tr>
<td>affluence rank percentage of Merseyside's population</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>percentage of callers reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>serious disorder</td>
<td>1.8</td>
<td>26.6</td>
</tr>
<tr>
<td>sexual offences</td>
<td>9.5</td>
<td>42.0</td>
</tr>
<tr>
<td>robbery and theft from person</td>
<td>23.1</td>
<td>29.4</td>
</tr>
<tr>
<td>assaults</td>
<td>9.7</td>
<td>39.5</td>
</tr>
<tr>
<td>minor disorder</td>
<td>5.9</td>
<td>42.4</td>
</tr>
<tr>
<td>all property crime</td>
<td>4.4</td>
<td>38.7</td>
</tr>
<tr>
<td>neighbour disputes</td>
<td>9.7</td>
<td>34.1</td>
</tr>
<tr>
<td>burglary of domestic dwell</td>
<td>4.5</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>4.9</td>
<td>32.3</td>
</tr>
</tbody>
</table>

* (a) urban venturers, (b) have-nots, (c) senior citizens, (d) settled suburbans, (e) thriving greys (f) affluent achievers

Notes:
The crime incident categories appear in decreasing order of spatial segregation.
Affluence rank 1 = most affluent lifestyle; 10 = least affluent lifestyle

but well over one half of all callers reporting sexual offences, serious disorder, robberies, assaults and domestic disputes in the three year period 1992 to 1994 (table 3). This group included the most disadvantaged of the 10 Super Profile lifestyles, the 'have-nots' (affluence rank 10/10), characterized by high unemployment, large families, single-parent households, low qualification and skill levels and council housing together with two markedly less deprived areas.

One of these ('senior citizens', affluence rank 7/10) comprised a mix of lower-income retired residents and young transient single people and the other, ('urban venturers', affluence rank 5/10) were described as cosmopolitan multi-racial areas of high population turnover, with a mix of single young professionals, students and young families and over-representations of sub-divided shared dwellings and private renting. Significantly, 'urban venturers' contained only 1.8 percent of Mersey-
side's population but nearly one-quarter (23.1 percent) of all callers reporting sexual offences; over twelve times higher than expected. This neighbourhood type also accounted for nearly 10 percent of callers reporting suspected property crimes, robberies and serious disorder, making it the area with the highest concentration of reported incidents in Merseyside.

One area of relative disadvantage, 'producers' (affluence rank 8/10), characterized by older blue-collar workers (mainly in manufacturing industry), above average unemployment, council housing and a highly stable population (i.e. migration well below average), made significantly lower than expected demands on the police across the entire range of incidents examined. Comprising just over 10 percent of the population, this area type accounted for 7.2 percent of callers reporting sexual offences and between 8 and 9 percent of those reporting most other incidents.

These results would seem to indicate that the level of disadvantage per se is not sufficient to account for variations in the demand for formal social control from different types of residential neighbourhood. Whilst it is true that the most severely disadvantaged area had a statistically significantly greater than expected number of callers, this was also true for areas with markedly less severe deprivation profiles. Conversely, one of the more deprived lifestyles had lower than expected numbers of callers. The implication of these findings is that variations in social and ethnic heterogeneity, population turnover and levels of guardianship need to be considered alongside disadvantage in explaining differences between residential areas in the demand for assistance from the police. The three lifestyles with the lowest percentage of calls were also the three most affluent. Collectively, these areas accounted for 30 percent of Merseyside's population, but a much lower percentage of callers reporting serious disorder (10.9 percent), assaults (12.6 percent) robberies (14.2 percent) and sexual offences (14.4 percent, table 3). This finding was certainly more in line with expectations.

Conclusions

The research has generated several new data sets and has produced a number of methodological innovations. These include the development of software for generating demographic, land use and crime risk profiles, the derivation of spatial segregation indices for different types of crime and the construction of an index measuring the social and physical distance between affluent and disadvantaged areas.
Much remains to be done to test, in a more systematic way, the complex inter-relations between crime, disadvantage, segregation and social cohesion on Merseyside. Although some initial insights into these relations have been gained from the analysis of data on calls to the police, further analyses need to be undertaken, using data on recorded crime and offenders from the Merseyside ICJS, in order to draw some final conclusions.

Some initial analyses have also been undertaken of the impact on crime of spatial relations (i.e. the proximity of disadvantaged to affluent areas). An examination of 'crime incident' rates generated from 'command and control' data suggests that two processes may be operating. The first of these occurs where affluent areas are largely surrounded by disadvantaged areas and is characterized by relatively high crime rates in the former. This points to an increased temptation for potential offenders in disadvantaged areas to commit offences in the neighbouring affluent areas. The second process occurs where disadvantaged areas are surrounded by affluence and can best be described as a 'demoralization' effect: potential offenders in disadvantaged areas are continually exposed to affluence, become demoralized and offend in their own area. These are only tentative conclusions. If these relations are replicated in subsequent analyses of data on recorded crime, they may have important implications for crime prevention. One consequence might be a more systematic targeting of these border areas for crime prevention programmes (e.g. neighbourhood watch and target-hardening schemes) and/or additional policing.

The innovative methods that have been set out in this paper are already in the process of being applied at a more practical level. An adaptation of the profiling program is currently being used by the Safer Merseyside Partnership (SMP) to target areas for resource allocation. The SMP is a five-year initiative funded by central government to reduce levels of crime on Merseyside through innovative crime prevention strategies. This collaboration is a good example of how links can be established between academic research and policy implementation.

The detailed geographical coding of the ICJS data for both victims and offenders will also open up opportunities for conducting more detailed analyses of relations between victimization, offending and urban social structure in Merseyside. Using these data it will be possible to identify the proportion of victims victimized within their own neighbourhood, by type of area (disadvantaged, middle-income, affluent), the proportion of offenders offending in their residential area and how this varies by area type (e.g. across different types of disadvantaged area), and the extent to
which all the locations (victim, offence, offender) fall in the same area (self-containment rates). It should also be possible to examine, more closely, both the individual and ecological characteristics associated with victimization and offending on Merseyside.

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Identifying, explaining, and targeting burglary ‘hot spots’

Trevor Bennett

There is growing support for the idea that crime prevention at the local level should begin with a thorough understanding of the nature of the local crime problem (Shapland et al., 1994). This principle is implicit in targeted policing strategies (Bennett, 1994) and multiple victimizations research (Forrester et al., 1988) and explicit in crime analysis techniques (Ekblom, 1988) and in problem-oriented policing (Eck and Spelman, 1987). In the last few years, there have been a number of local multi-agency programmes established in England which have used crime analysis techniques as a means of tailoring crime prevention strategies to individual local problems (Tilley and Webb, 1994). In this paper, I shall discuss the results of the first stage of crime analysis and problem identification of a multi-agency programme set up in Cambridge, England which aimed to reduce residential burglary.

The Cambridge Domestic Burglary Task Force (henceforth, ‘Task Force’), which conducted the research, is a subgroup of a parent group called the Safer Cambridge Steering Group (henceforth, ‘Steering Group’). The Steering Group was established in December 1992 with the remit (amongst other things) to coordinate practical projects involving different organizations which help to reduce crime and fear of crime and to monitor levels of crime and fear of crime in Cambridge. The Task Force was established in July 1994 with the remit to examine the nature and extent of residential burglary in Cambridge and to suggest and implement initiatives to tackle it.

The Task Force would include representatives of those agencies which could provide practical help in fulfilling the aims of the group (rather than simply being representative of the parent Steering Group or of agencies in Cambridge). This has resulted in the group comprising representatives of the City Council (and various departments such as

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Housing and Employment), the County Council, the Police, Probation, Victim Support, and the University of Cambridge.

In its first few meetings, the Task Force designed a general strategy which would orient its actions. It was decided that its first task should be to collect as much information as possible about the nature of the problem of residential burglary. It was also decided that the group should focus its efforts on specific high-crime areas of Cambridge rather than on the City as a whole. The main reasons for this were: (1) to concentrate available resources into a small area where they might have greatest effect; and (2) to use the experiment as a pilot which might then be extended either to other high-rate areas or to the City as a whole at a later date. To this end, it was decided to identify one or two burglary 'hot spots' (or 'hot' areas) which might be amenable to intervention.

The general approach of the Task Force was to develop a rational strategy which was influenced not only by the findings of its own research, but also by the findings of established criminological research. This included research on repeat burglary victimization (Farrell and Pease, 1993), environmental research on the spatial distribution of crime (Brantingham and Brantingham, 1981), research on crime 'hot spots' (Sherman et al. 1989), 'routine activity theory' (Clarke and Felson, 1993), and the 'journeys to crime' research (Rengert and Wasilchick, 1985). It is expected that the selection of strategies in the next stage of the programme will be also be influenced by criminological research on the effectiveness of intervention strategies including research on repeat burglary victimization (Farrell and Pease, 1993), problem-oriented policing (Eck and Spelman, 1987), and targeted policing strategies (Sherman, 1992).

Methods

During the first year of its operation, the Task Force aimed to identify a single 'hot spot' (or cluster of hot spots) of residential burglary as a target for its interventions.

Selecting the 'hot spot'

The selection of the hot spot site was a three-stage process. The first stage involved identifying potential sites from crime data for Cambridge City as a whole. The second stage involved testing whether the identified areas were constant hot spots of residential burglary over time. The third stage involved marking out an area identified for targeting. The first stage of the research involved analyzing pre-existing crime
profiles of Cambridge which had been constructed over the years by the local police and by the Cambridge City Council Crime Reduction Group. The second stage involved conducting crime analysis of the areas identified as potential sites in the first stage. It was important that the group targeted an area which had been a burglary hot spot for some time (rather than a transitory hot spot). The stability of the potential hot spot areas was tested by mapping burglaries over three consecutive six-month periods. Hot spots that were visible in each of the three periods were potentially eligible to be selected as the targeted sites. The third stage involved identifying the selected area. In making this decision, the group decided that other factors had to be taken into account apart from the absolute number or concentration of burglaries at the site. The targeted area should not span more than one or two wards in order to provide a focus to the programme. Further, the target-ed area should (if possible) include a mixture of private and council-(public-)owned dwellings as Cambridge City Council had greater power and resources to intervene in council-owned areas than in private areas. A provisional review of earlier crime surveys in Cambridge showed that burglary had for many years been a special problem for the north of the City. In particular, there was long-term evidence of clustering of burglaries in the southern sector of two of the northern wards. This pair of wards also met our criterion of providing a balance of council-owned and privately owned dwellings (one ward was dominantly council properties, while the other ward was dominantly private properties). Hence, Cambridge Wards 2 and 4 (see figure 1) were chosen as the targeted wards. A cluster of burgled properties towards the south of these wards was identified as the targeted hot spot.

Data gathering

During the first year, various research methods were used to collect information on the nature and distribution of residential burglary.

1. Crime pattern analysis: Police-recorded data on residential burglary in the City of Cambridge were mapped in order to determine spatial patterns of burglary in the City and in the selected hot spot.

2. Offenders’ addresses: The Police Offender Data Base was used to identify the address of all offenders convicted of burglaries in the selected crime hot spot.

3. Interviews with local burglars: A small number of local burglars were identified by Cambridge Probation Service and interviewed by two postgraduate students currently studying at the Institute of
Criminology. It was hoped that all of the offenders interviewed would have committed most of their burglaries in Cambridge and that some of them would have committed their offences in the targeted wards (and perhaps also the targeted burglary hot spot).

4 Environmental survey: Two local police officers experienced in crime prevention conducted an on-the-street survey of properties in the targeted hot spot area to determine whether there were any obvious environmental factors which generated opportunities for burglary. The survey also included an external appraisal of the environment of properties which had been repeatedly victimized during the analysis period.

5 Household survey: A limited household survey was conducted using postal questionnaires in order to check the accuracy of police-recorded crimes and to confirm the boundaries of the hot spot. The group found that the burglary hot spot tended to be most clustered in the privately owned area of the two wards and tended to be less evident in the publicly owned areas. As this seemed to contradict the national pattern of residential burglary found in British Crime Surveys (e.g. Mayhew et al., 1993), it was decided that we should check whether the difference was real or a reporting or recording artefact.

6 Repeat burglary victim survey: A self-completed questionnaire was handed to every new burglary victim in the City of Cambridge by the investigating police officer to determine the previous burglary histories of current victims.

In this article, I shall discuss just some of the findings which have emerged from the first three sources of data (space does not permit discussion of all the methods used).

Results

The results obtained from the crime pattern analysis have provided useful information on: (1) the distribution of burglary in Cambridge; and (2) the nature of residential burglary in the crime hot spot. The results of the analysis of the offender data base have provided information on: (3) where the hot spot offenders live. The results of the interviews with burglars convicted of burglaries in Cambridge have provided information on: (4) places where burglars committed their offences; (5) repeat burglaries; and (6) offenders' perceptions of the targeted hot spot.
The distribution of burglary in Cambridge

The distribution of residential burglary in Cambridge was analyzed by the Task Force from existing crime maps covering the period 1991 to 1994 and from our own analysis of police-recorded crime for 1994. Maps of residential burglary in Cambridge had been previously generated by Cambridge County Council based on police crime reports for 1991 and for 1993. In both years the maps showed a strong tendency for burglaries to be committed in the north of the City and to concentrate in two or three wards.

A more detailed analysis was also conducted of all residential burglaries in Cambridge in 1994. In that year, there were 1,736 recorded residential burglaries in the City. These offences were unevenly distributed across the City wards. Figure 1 shows the 14 wards of Cambridge sorted in terms of total number of residential burglaries. The five wards with the greatest number of burglaries accounted for over half (53%) of all residential burglaries in the City. Controlling for number of households (i.e. in order to generate a burglary rate) showed that three of the five wards which had the highest burglary counts were also in the top five which had the highest burglary rates (Wards 1, 2 and 4). The two selected

Figure 1: Residential burglary by Ward, City of Cambridge, 1994
Table 1: The distance of the address of offenders detected for residential burglaries in the targeted 'hot spot'

<table>
<thead>
<tr>
<th>address of the offender</th>
<th>offenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>inside the hot spot boundary</td>
<td>4</td>
</tr>
<tr>
<td>less than one-quarter of a mile from the hot spot boundary</td>
<td>4</td>
</tr>
<tr>
<td>one-quarter of a mile to less than 1 mile from the hot spot boundary</td>
<td>6</td>
</tr>
<tr>
<td>1 mile to less than 2 miles from the hot spot boundary</td>
<td>3</td>
</tr>
<tr>
<td>address in Cambridge unknown</td>
<td>1</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

wards (Wards 2 and 4) fitted our selection criteria best (including high counts and rates of residential burglary and comprising a mix of public and private housing).

Residential burglary in the 'hot spot'

In 1994, there were 338 residential burglaries in the two selected wards (Ward 2 and 4). This represented about one-fifth (20 percent) of all residential burglaries in Cambridge City for the year. The selected hot spot area, spanning Wards 2 and 4, included 170 residential burglaries, comprising just over half (50 percent) of all burglaries in these two wards and about one-tenth (10 percent) of all residential burglaries in Cambridge.

The Task Force was particularly concerned to find out what proportion of burglaries in the hot spot were repeats. Police-recorded crime for the period January 1993 to June 1994 (the main period of analysis used by the Task Force) were analyzed in order to calculate the proportion of all addresses which were repeat addresses and the proportion of all burglaries which were repeat burglaries. The results for the hot spot area showed that about one-fifth (19 percent) of all addresses burgled in the 18 months period were burgled more than once (i.e., they were repeat victimizations). The results also showed that just over one-third (35 percent) of all burglaries recorded were part of a repeat series of burglaries. The fact that the percentage of repeat burglaries was higher than the percentage of repeat addresses shows that repeat victimizations sometimes involved more than a single repeat. In fact, about one-quarter (24 percent) of all repeat addresses and one-third (34 percent) of all repeat burglaries involved more than one repetition (i.e., three or more offences).
Where the 'hot spot' offenders lived

During the period from January 1, 1993 to June 30, 1994, there were 476 residential burglaries in the targeted hot spot. At the time of the analysis (early 1995), 48 of these offences had been 'cleared up' (i.e., detected) by the police and the address of the offender was known. In the case of 43 of these 48 offences, the offender was known to live in Cambridge. The 43 burglaries were committed by eighteen separate offenders (some offenders committed more than one offence in the hot spot area). Hence, it was possible to identify the relation between the address of the offender and the hot spot site in relation to these eighteen offenders. The results are shown in table 1.

The table shows that the offenders tended to live very close to the site of their burglaries. Four of the eighteen offenders lived inside the boundaries of the hot spot and four more lived less than one-quarter of a mile from the hot spot boundary. The remainder lived between one-quarter of a mile and less than two miles from the site of their burglaries. When plotted on a map, it can be seen that the majority of these offenders lived either in the same wards covered by the hot spot or in the next adjacent wards. Most of the offenders lived to the northeast of the hot spot and to the northeast of the City.

Places where burglars committed their offences

In order to explain why local offenders might select the targeted hot spot as the location for their burglaries, we sought interviews with local burglars. This was done through the local probation department which asked all of its clients who had current convictions for burglary and who had committed at least some of their offences within Cambridge City if they would be willing to be interviewed. At the time, Cambridge Probation had about thirty clients on their register who met our conditions. By the end of the first year of the work of the Task Force we had conducted interviews with ten of these offenders.

Most of the burglars were very active offenders and had committed most of their offences in the targeted wards. Hence, while the number of offenders interviewed was small, they represented an active and experienced group of offenders whose opinions were of interest to the Task Force.

The offenders were asked about their offending over a twelve-month period prior to their most recent conviction. Eight of the ten offenders said that they had committed the majority of their offences in
Cambridge. Six of the eight offenders said that they had committed the majority of their offences in the two wards targeted by the Task Force. Most of these offenders committed most of their offences less than a mile from their home base. Four of the six offenders who said that they committed most of their offences in the targeted wards also lived in the targeted wards.

When asked why they chose their most frequent offence site, six out of the ten offenders gave the nearness of the offence site to their home base as their primary reason. The remainder gave a variety of reasons relating to the general attractiveness of the area in terms of burglary.

Half the sample said that they had committed 50 or more residential burglaries in the twelve-months prior to conviction. The six offenders who said that they committed most of their offences in the targeted wards reported committing at least 274 residential burglaries (when combined) in the targeted wards during their last twelve-months period of offending. If these six offenders had committed their offences at the same time (which they did not as they were convicted at different times) and if their estimates of the total number of burglaries committed were accurate, they would have accounted for over half of all residential burglaries in the two wards.

**Repeat burglaries**

The issue of repeat victimization was of interest to the objectives of the Task Force as they wanted to find out whether they should target repeat victimization in the second stage of their work. However, repeat victimization was also of interest from a criminological point of view as it is still unknown why some dwellings are repeatedly victimized. Three hypotheses were provided as potential explanations of repeat burglary by Polvi et al. (1991):

1. the same offender returns;
2. the offender tells others and they return;
3. the home is generally an attractive target to all potential burglars.

In order to test these hypotheses, the offenders were asked if they ever went back to any of the dwellings that they had already burgled during the twelve-months period prior to conviction. The majority of offenders said that they had gone back. When asked why they committed repeat burglaries they gave a number of reasons which covered the main reasons given by burglars generally for committing offences which can be found in the literature (namely perceived low risks, high rewards, or ease of access; see Bennett and Wright, 1984).
They were then asked whether they had ever burgled a dwelling in the twelve-month period before the last conviction as a result of other burglars telling them about a home that they had previously burgled. Almost half of the offenders said that they had committed this kind of repeat burglary. When asked why they returned to the homes that others had burgled before them, they gave a number of reasons which focused on the perceived rewards offered by the dwelling (rather than low risk or ease of entry).

Hence, the above results (while admittedly relating to a small number of offenders) provide some support for the first and second of the Polvi et al. (1991) hypotheses. The offenders sometimes go back to the same dwelling and burgle it again and sometimes they tell their friends or their friends tell them about a burglary target. The third hypothesis seems a less convincing explanation as it does not match what is known about the time course of repeat victimization.

**Burglars' perceptions of the 'hot spot'**

In addition to the main questionnaire (the results of which have been described above) respondents were given a short questionnaire which investigated offenders' views of the hot spot area. At the time of writing, three of the ten offenders admitted committing burglaries in the targeted hot spot and completed the short questionnaire.

In order to find out why the hot spot was attractive to burglars, we asked them why they had chosen the hot spot location as a site for burglary in the past. Two of the three offenders said that the location of the site in relation to where they lived played an important part in their decision. Other reasons given related to their perceptions of the risks, rewards, and effort involved, including the perceived vulnerability of the windows of dwellings in the hot spot area, the existence of passage ways to facilitate entrance and escape, and the expectations that there will be something worth stealing in the area. They all believed that other burglars would also find the hot spot an attractive site for burglary for the same reasons.

**Conclusion**

The data-gathering and crime analysis part of the Task Force programme (while not yet completed) has generated some useful information about burglary in Cambridge which might inform a crime prevention strategy. The research has shown that residential burglary is not evenly distrib-
uted across Cambridge, but tends to be clustered in the northwest of the City. It has also shown that even in these high-burglary areas there are 'hot spots' and 'cold spots' of crime. These hot spots account for a relatively large proportion of all burglary.

One factor contributing to the high burglary counts in the hot spot area is the high number of repeat burglaries, with as many as 35 percent of all burglaries recorded in the area being one of a repeat series of burglaries. Another factor which might have contributed to the high burglary counts was the abundance of access and escape routes of the kind identified in the environmental survey. Perhaps the most important factor which explains the high number of burglaries was the closeness of the area to the place of residence of known offenders. The hot spot site thus provides a local source of easy and rewarding opportunities for offenders who live in these areas.

In the second stage of its work, the Cambridge Burglary Task Force will collate the information that has been collected in the first stage and devise appropriate intervention strategies. We aim to continue to monitor crime and criminals in the area and to evaluate the effectiveness the programmes implemented.

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Commercial robbery in the Netherlands

Crime analysis in practice

Victor Jammers

In recent years there has been a considerable growth of robbery of commercial targets in the Netherlands. One of the consequences of this development was increasing political pressure on the Dutch government to tackle the problem. This pressure resulted in 1993 in the creation of a small Commercial Robbery Task Force (CRTF). The Dutch government and the business community cooperate in this Task Force. The Task Force has drawn up a plan of action, based on its analysis of commercial robbery.

In the Netherlands robberies are defined as 'the (attempted) taking or extortion of anything of value by force or threat of force against a person or persons'. Commercial robberies are aimed against the business community, which includes financial targets (banks, post offices and professional money transport), petrol stations, catering establishments and shops. The robbery of non-professional money transports (the person bringing shop takings to banks or post offices) is also considered as commercial robbery.

The CRTF has been set clear targets: that in 1994 the number of robberies should be 5 percent less than in 1993 and that in 1995 the number should be 5 percent less than in 1994.

In addition some subtargets were formulated: a rise in the percentage of robberies solved; an increase in the awareness of risk within the business community; influencing the choices made by robbers so that committing a robbery becomes less attractive; and adequate support for all victims of robbery. In mid 1996 the CRTF will end its activities. Before this date,

1 Dutch Ministry of Justice, Department of Crime Prevention, P.O. Box 20301, 2500 EH The Hague, The Netherlands.
all targets and subtargets must have been met. The CRTF approach to the robbery problem is to stimulate more – and more effective action – with respect to repression, situational prevention, offender-oriented prevention and assistance to the victims of robbery. The CRTF is not primarily an executive body; rather, it aims to stimulate all the relevant agencies to action and to encourage cooperation and coordination. By considering the possibilities and responsibilities of everyone involved, the CRTF develops a range of preventive and repressive measures. The activities of the CRTF are grounded on a thorough analysis of the robbery problem. The starting point are the overall data. For each specific problem presented to the CRTF a detailed analysis is made. In this article two examples are given: the wish to extend the opening hours of Dutch shops and the prevention of crime against taxi drivers.

Analysis

Data

The police are required to report every robbery to the National Crime Intelligence Service. These data constitute the input of the National Robbery Registration System, designed for operational and strategic analysis. Only a relatively small number of robberies (approximately 10-20%) go unreported. Therefore, the available data give a reliable picture of the scale of, and trends in, commercial robbery. For each robbery a great deal of information is recorded, ranging from the exact time of the robbery to the language used by the robbers.

Types of target

The number of robberies in the Netherlands has increased in recent years (table 1). From 1990 to 1993 the number of robberies increased by 70%, from 1,517 to 2,607. Catering establishments, shops and non-professional money transports account for the largest increase. In 1993 the number of robberies on financial targets such as banks and post offices started to decrease. In 1994 the number of robberies on petrol stations and the catering industry started to decrease also. Table 1 includes robberies in domestic premises. These are not considered as commercial targets, but they are important because of the risk of displacement.
Table 1: Number of robberies according to the type of business

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>financial targets</td>
<td>376</td>
<td>530</td>
<td>612</td>
<td>540</td>
<td>348</td>
</tr>
<tr>
<td>petrol stations</td>
<td>189</td>
<td>175</td>
<td>208</td>
<td>226</td>
<td>191</td>
</tr>
<tr>
<td>catering industry</td>
<td>204</td>
<td>263</td>
<td>416</td>
<td>518</td>
<td>482</td>
</tr>
<tr>
<td>shops</td>
<td>409</td>
<td>403</td>
<td>583</td>
<td>698</td>
<td>762</td>
</tr>
<tr>
<td>other businesses</td>
<td>44</td>
<td>54</td>
<td>67</td>
<td>66</td>
<td>51</td>
</tr>
<tr>
<td>taxis</td>
<td>17</td>
<td>29</td>
<td>28</td>
<td>76</td>
<td>90</td>
</tr>
<tr>
<td>non-prof. money transport</td>
<td>104</td>
<td>107</td>
<td>124</td>
<td>205</td>
<td>152</td>
</tr>
<tr>
<td>domestic premises</td>
<td>174</td>
<td>191</td>
<td>174</td>
<td>278</td>
<td>313</td>
</tr>
<tr>
<td>total</td>
<td>1,517</td>
<td>1,752</td>
<td>2,212</td>
<td>2,607</td>
<td>2,389</td>
</tr>
</tbody>
</table>

Table 2: Successful robberies according to the type of business, in %

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>financial targets</td>
<td>76</td>
<td>75</td>
<td>79</td>
<td>70</td>
<td>72</td>
</tr>
<tr>
<td>petrol stations</td>
<td>86</td>
<td>81</td>
<td>82</td>
<td>79</td>
<td>69</td>
</tr>
<tr>
<td>catering industry</td>
<td>80</td>
<td>80</td>
<td>73</td>
<td>69</td>
<td>72</td>
</tr>
<tr>
<td>shops</td>
<td>67</td>
<td>65</td>
<td>66</td>
<td>64</td>
<td>62</td>
</tr>
<tr>
<td>other businesses</td>
<td>71</td>
<td>59</td>
<td>73</td>
<td>73</td>
<td>53</td>
</tr>
<tr>
<td>taxis</td>
<td>88</td>
<td>76</td>
<td>64</td>
<td>62</td>
<td>69</td>
</tr>
<tr>
<td>non-prof. money transport</td>
<td>81</td>
<td>79</td>
<td>80</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>domestic premises</td>
<td>59</td>
<td>71</td>
<td>60</td>
<td>54</td>
<td>52</td>
</tr>
<tr>
<td>total</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>67</td>
<td>65</td>
</tr>
</tbody>
</table>

Criminal success and revenues

A robbery is considered successful when the offender gets money or goods. In table 2 the percentages of successful robberies are shown according to type of business. Ekblom (1987) calculated that about half of the robberies of subpost offices in the London Postal Region were failures. In the Netherlands only one-quarter of the robberies of financial targets were unsuccessful. The trends vary for different types of business, but the overall trend is downward: it is becoming less easy to rob a commercial target in the Netherlands.

Table 3 shows average losses (using the median, not the mean) for each type of robbery. All figures are indexed, with the 1992 figure for non-professional money transport taken as 100. Failed robberies are excluded. In addition to a decrease in the success of robberies, the revenues also decrease. It is becoming less profitable to rob a commercial target in
Table 3: Robberies: financial loss by type of business (indexed, non-professional money transport in 1990 = 100)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>financial targets</td>
<td>342</td>
<td>325</td>
<td>274</td>
<td>181</td>
<td>187</td>
</tr>
<tr>
<td>petrol stations</td>
<td>21</td>
<td>17</td>
<td>19</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>catering industry</td>
<td>24</td>
<td>26</td>
<td>26</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>shops</td>
<td>20</td>
<td>16</td>
<td>19</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>other businesses</td>
<td>137</td>
<td>120</td>
<td>51</td>
<td>94</td>
<td>26</td>
</tr>
<tr>
<td>taxis</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>non-prof. money transport</td>
<td>100</td>
<td>113</td>
<td>129</td>
<td>103</td>
<td>114</td>
</tr>
<tr>
<td>domestic premises</td>
<td>15</td>
<td>27</td>
<td>21</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>total</td>
<td>39</td>
<td>43</td>
<td>44</td>
<td>31</td>
<td>21</td>
</tr>
</tbody>
</table>

the Netherlands. The CRTF, like Clarke and McGrath (1990), stresses the importance of cash reduction all the time. It seems that this strategy has become productive.

Offenders

Hunter (1990) states that crime and criminal behaviour is a product of characteristics of the offender and the environment in interaction. The CRTF therefore not only analyses situational variables, but it also applies the results of research as well as practical experience of the police to provide a profile of the offenders.

Kroese and Staring (1993) interviewed 43 robbers in Dutch prisons. They based their research on the rational choice theory of Cornish and Clarke (1986). From the three types of robbers they distinguished, two are relevant to the Commercial Robbery Task Force: the beginners and the professionals.

Kroese and Staring identified 15 factors playing a part in the process of selecting the target, the time, the number of accomplices, the means of getaway transport and the escape route. The CRTF grouped these factors into three categories: manipulable, partly manipulable and non-manipulable factors. Factors are considered to be manipulable when the actual value or the value perceived by the robber can be changed by preventive or repressive measures. Manipulable factors are: security measures, expected criminal revenues, employees/customers and requisite violence. Partly manipulable factors are: location of the target and escape routes. Non-manipulable factors are: size of the target, informer, confidence in accomplices, fear, speed of
escape vehicle, possibility of leading the police astray, friendship with accomplices, distance from target and possibility of surprise effect.

In the development of its security concepts the CRTF targets the four manipulable factors: security measures, expected criminal revenues, employees and customers and requisite violence. Research among robbers as carried out by Kroese and Staring is of great importance in the design of security concepts with respect to the prevention and repression of robberies. As the influence of environmental factors may vary over time (Hunter, 1990), research concerning the motives and choices of robbers has to be carried out with some regularity.

The present offender population (all the persons who have robbed commercial targets) in the Netherlands is not homogeneous. It can be divided into three broad categories: starting, experienced and professional offenders. The latter category prefers to rob banks, post offices and jewellers, experienced offenders rob petrol stations, supermarkets and non-professional money transports, the starters rob small shops and snack bars. None of them commits a robbery simply because the opportunity is presented. Nearly all robberies are preceded by some form of preparation.

**Displacement**

Displacement is defined as the persistence of criminal behaviour when a motivated offender, in reaction to a situational preventive measure, commits a crime outside the scope of this measure (Hesseling, 1994). In the history of robbery prevention in the Netherlands, many examples can be given of robbers changing the modus operandi, the target, the time, the location or the crime that is committed. Hesseling (1994) concludes that these forms of displacement are possible, but not inevitable. Until now, the preventive measures invoked by the CRTF have not led to any form of displacement of robberies. The CRTF tries to prevent displacement by coordinated security measures in different types of business as recommended by Ekblom (1987). The CRTF is well aware of the risk of displacement and routinely analyzes if, for example, private houses or automated teller machines show a rise in the number of robberies. In 1993 and 1994 there was a rise in the number of robberies in private houses. A detailed analysis of these robberies will be made in mid-1995.
**Extension of shop opening hours**

**The context**

Most Dutch shops are open from Monday to Saturday from 9.00 am until 6.00 pm. In addition to these hours, shops are allowed to be open on Thursday or Friday from 6.00 pm until 9.00 pm. In 1994 a political debate began on the extension of shop opening hours. As part of this debate research has been carried out on the effects of an extension of opening hours on crime in shops. The CRTF estimated the possible consequences of such an extension on the nature and volume of commercial robbery. Such changes are probable. In Canada, for example, nearly 40 percent of the robberies on convenience stores occurred in the evening (Roesch and Winterdyk, 1986). A similar situation could occur in the Netherlands.

**Analysis**

Table 4 summarizes the time distribution of robberies against the various types of business. It shows that more than a third of robberies are committed between 6.00 pm and midnight. With petrol stations, catering industry and non-professional money transport this percentage is higher; with shops, taxis and financial institutions it is lower.

The (sub)types of business which comply with the following three conditions have been analyzed in detail:

- open during daytime and in the evening (at least on Thursday or Friday);
- sufficient data available;
- operating as a retail outlet.

Five (sub)types complied with these conditions: petrol stations, snack bars, catering industry (snack bars excluded), video shops and shops (video shops excluded). In table 4 the distribution of the robberies on these targets during daytime and in the evening is presented, in table 5 the evening is divided into the hours before and after 9 pm.

Table 4 and 5 show that with most types of business the robbers' preferences for certain hours remained constant in 1993 and 1994. The petrol stations are the exception to this rule. On Thursday or Friday (late night opening) robbers prefer to commit their crime during the evening hours.
Table 4: Time distribution of robberies in 1993 and 1994, in %

<table>
<thead>
<tr>
<th>target</th>
<th>1993</th>
<th></th>
<th>1994</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-18h</td>
<td>18-24h</td>
<td>0-18h</td>
<td>18-24h</td>
</tr>
<tr>
<td>financial targets</td>
<td>94</td>
<td>6</td>
<td>93</td>
<td>7</td>
</tr>
<tr>
<td>petrol stations</td>
<td>19</td>
<td>81</td>
<td>27</td>
<td>73</td>
</tr>
<tr>
<td>catering industry</td>
<td>40</td>
<td>60</td>
<td>38</td>
<td>62</td>
</tr>
<tr>
<td>- snack bars</td>
<td>29</td>
<td>71</td>
<td>27</td>
<td>73</td>
</tr>
<tr>
<td>- other targets</td>
<td>47</td>
<td>53</td>
<td>46</td>
<td>54</td>
</tr>
<tr>
<td>shops</td>
<td>73</td>
<td>27</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>- video shops</td>
<td>9</td>
<td>91</td>
<td>9</td>
<td>91</td>
</tr>
<tr>
<td>- other targets</td>
<td>77</td>
<td>23</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>other businesses</td>
<td>62</td>
<td>38</td>
<td>63</td>
<td>37</td>
</tr>
<tr>
<td>taxis</td>
<td>76</td>
<td>24</td>
<td>76</td>
<td>24</td>
</tr>
<tr>
<td>non-prof. money transport</td>
<td>56</td>
<td>44</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>houses</td>
<td>52</td>
<td>48</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>total</td>
<td>64</td>
<td>36</td>
<td>61</td>
<td>39</td>
</tr>
</tbody>
</table>

Table 5: Time distribution of robberies during evening hours, in %

<table>
<thead>
<tr>
<th>target</th>
<th>1993</th>
<th></th>
<th>1994</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18-21h</td>
<td>21-24h</td>
<td>18-21h</td>
<td>21-24h</td>
</tr>
<tr>
<td>petrol stations</td>
<td>65</td>
<td>35</td>
<td>78</td>
<td>22</td>
</tr>
<tr>
<td>catering ind. snack bars</td>
<td>20</td>
<td>80</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>catering ind. other targets</td>
<td>29</td>
<td>71</td>
<td>28</td>
<td>72</td>
</tr>
<tr>
<td>shops: video shops</td>
<td>47</td>
<td>53</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>shops: other targets</td>
<td>70</td>
<td>30</td>
<td>69</td>
<td>31</td>
</tr>
</tbody>
</table>

Conclusions

If robbers can choose between robbing a target during daytime or in the evening, they choose the evening. That goes for all the analyzed (sub)types of business. Within evening hours, robbers prefer a time after 9.00 pm to an earlier time, when they have the choice (e.g. video shops, snack bars, other catering industry).

An interesting development has occurred with petrol stations. With all the other (sub)types the ratio of robberies before and after 9.00 pm remained about constant in 1993 and 1994. With petrol stations a shift has occurred towards the early evening. Since January 1994 certain security measures have been made compulsory for petrol stations open after 9.00 pm (Jammers, 1995). These measures may have led to a
decrease in the number of petrol stations operating after 9.00 pm, which leads to fewer opportunities for robberies; a deterrent effect of the security measures taken after 9.00 pm, which causes the robbers to commit their crime at an earlier time or not to commit it at all.

**Prognosis**

In recent years, the regulations with regard to the opening hours of commercial targets have not changed. Nevertheless the number of robberies rose sharply from 1990 until 1994 (table 1), in which year a slight decrease became visible. Variables other than the opening hours apparently determine the number of robberies. It is thought that the level of preventive and repressive measures in connection with the characteristics of the offender population are the variables that determine the number of robberies.

If no radical changes occur in the offender population and if preventive and repressive measures remain at their present level, it is expected that the extension of the opening hours will not lead to an increase in the number of robberies on shops in the Netherlands.

A shift from daytime to evening robberies is probable, however. As soon as offenders have the opportunity to choose, they seem to prefer the extra protection darkness provides.

The data on robberies of petrol stations show that it is possible to influence the rational choice of the robber by a combination of security measures.

The CRTF has informed the Dutch government of its projection that an extension of the opening hours of shops will not lead to a rise in the number of robberies. Security measures however should be taken to compensate the higher risk of robbery during evening hours.

**Security of taxi drivers**

**The context**

Organizations representing taxi drivers asked the CRTF to help them in their efforts to cope with rising crime against taxi drivers. In the Netherlands, taxi drivers are self-employed drivers or employed by a taxi company. These companies employ full-time, part-time and stand-by

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2 In this article, a taxi is defined as a car with a driver that can be ordered by phone, halted on the street, entered at a taxi rank in order to be transported from A to B.
drivers. The size of these companies varies from only a few to more than 100 taxis. The self-employed drivers sometimes share taxis with two or three drivers working in shifts operating from shared offices.

In August 1994 a survey was carried out of abuse and violent and property crimes against taxi drivers (Eysink Smeets and Etman, 1994). The information was gathered by interviewing 550 taxi drivers in cities of four different sizes:
- more than 200,000 inhabitants;
- 100,000-200,000 inhabitants;
- 50,000-100,000 inhabitants;
- less than 50,000 inhabitants.

The survey showed that few women work as taxi drivers; taxi drivers in the largest cities are on average somewhat older than elsewhere; self-employed drivers are concentrated in the largest cities; most drivers work full-time in changing shifts. The interviewed drivers were nearly all experienced taxi drivers.

Research: fear of crime

In cities with populations over 50,000 between a quarter and a third of drivers sometimes or frequently experience fear of crime during their work. In cities with less than 50,000 inhabitants this figure was only 13 percent (table 6).

A small majority of the interviewed drivers (54%) took the view that crime risks had not changed in recent years. More than one-third (37%) felt less secure than a few years ago.

The drivers who indicated that they sometimes or frequently felt unsafe specified the days and the time they felt unsafe. In medium-sized cities (50,000-200,000 inhabitants) they felt unsafe mainly during weekends (night life transport). A substantial percentage of the drivers in the largest cities (200,000) indicated that there was hardly any difference

<table>
<thead>
<tr>
<th>afraid of crime</th>
<th>&gt;200,000</th>
<th>100,000-200,000</th>
<th>50,000-100,000</th>
<th>&lt;50,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>never</td>
<td>26</td>
<td>32</td>
<td>27</td>
<td>52</td>
</tr>
<tr>
<td>seldom</td>
<td>40</td>
<td>45</td>
<td>49</td>
<td>35</td>
</tr>
<tr>
<td>sometimes</td>
<td>32</td>
<td>23</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>frequently</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
### Table 7: Taxi drivers: victimization in the last 12 months by city size, in %

<table>
<thead>
<tr>
<th>Victim</th>
<th>&gt;200,000</th>
<th>100,000-200,000</th>
<th>50,000-100,000</th>
<th>&lt;50,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>83</td>
<td>69</td>
<td>73</td>
<td>48</td>
</tr>
<tr>
<td>no</td>
<td>17</td>
<td>31</td>
<td>27</td>
<td>52</td>
</tr>
<tr>
<td><strong>Per incident</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-paying passenger</td>
<td>68</td>
<td>52</td>
<td>61</td>
<td>39</td>
</tr>
<tr>
<td>Damage to the taxi</td>
<td>23</td>
<td>21</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>Theft</td>
<td>14</td>
<td>11</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Threat</td>
<td>20</td>
<td>28</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>Grievous bodily harm</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Robbery</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

between weekdays and the weekend. In all cities, drivers felt unsafe mainly during the night, between midnight and 6.30 am.

**Research: victimization**

Although the CRTF primarily deals with robbery, it often tries to link preventive measures against robbery with measures to prevent other forms of crime, thus increasing the support for the robbery measures. In the twelve months preceding the interviews, nearly 75 percent of the drivers were victim of abuse or a violent or property crime. Table 7 provides details of:

- passengers leaving the taxi without paying;
- damage to the taxi (not as a result of a traffic accident);
- theft without violence (for example pickpocketing);
- threat (not with the intention of robbery);
- grievous bodily harm (not with the intention of robbery);
- robbery.

Table 7 shows that non-paying passengers are a widespread phenomenon. Risks of robbery seem to be low, but they are nearly as high as those facing tobacconists and supermarkets in the Netherlands, shops which usually take extensive preventive measures against robbery.

**Conclusions**

The research points to the conclusion that taxi drivers' fear of crime and their risk of victimization make it advisable to give serious attention to their safety. The crimes which taxi drivers fall victim to, or which they
fear, are the result of greed for money (leave the taxi without paying; robbery) and different forms of aggression (rude behaviour; threat; grievous bodily harm).

To prevent these incidents, the security policy should be aimed at:

1. minimizing the amount of money available in the taxi;
2. increasing the skills of the driver to defuse aggressive incidents at an early stage.

In addition to these starting points the measures taken should:

3. minimize the negative consequences of property crimes and violent crimes;
4. be compatible with the operating procedures;
5. be economically feasible.
6. be supported by all participants (managers, drivers, police).

Proposed security measures

About thirty security measures have been discussed with taxi drivers and organizations representing them. Each measure was judged against the six criteria already mentioned. The most important are:

- registration of incidents against taxi drivers by the taxi company;
- reporting the crime to the police;
- social skills as selection criterion of applicants;
- adequate victim assistance;
- safe operating procedures for both drivers and staff in the taxi office;
- transparent tariff systems;
- training of drivers and office staff in social skills and security procedures;
- promoting the use of 'plastic money' in the taxi;
- radiotelephone and alarm button in the taxi;
- video camera in the taxi;
- taxi ranks which benefit from natural surveillance;
- dealing with illegal taxi drivers by the police;
- regulation of the number of taxis.

The CRTF formulated a minimum package and a risk package of security measures. The minimum package is recommended for all cities, the risk package for those cities where employers and employees agree that the security risks are excessive. The minimum package contains mainly organizational security measures such as registration of incidents, selection of drivers, victim assistance, standard safety procedures, training of drivers and office staff. Recommended technical security measures are the radiotelephone and the alarm button. In addition to
the minimum package the risk package includes cooperation with all the taxi companies in the region and a standard protocol for the police response to reports of incidents. A video camera is considered to be the most effective technical prevention measure. Other technical measures depend on the local situation and the operating procedures.

Discussion

Ekblom (1987) noted that it is difficult to say what proportion of the reduction in crime should be attributed to security initiatives and what proportion to unrelated factors such as police action or totally coincidental events. There is no scientific proof that the activities initiated by the CRTF were an important cause of the decrease in robberies in 1994. There is just the conviction that without the CRTF the number of robberies would have been higher.

The strategic partners of the CRTF (business community and government) are to assess risks of displacement. Grandjean (1990) concluded that increased security has reduced the risk of robbery for protected banks, but has not reduced the overall number of bank robberies in Switzerland. Obviously displacement has occurred. Clarke, Field and McGrath (1991) found little evidence that target-hardening of banks in Australia had led to displacement to other regions or to other targets. The research carried out in Switzerland and Australia gives no decisive answer to the question why displacement did or did not occur. The same goes for robberies in the Netherlands. The CRTF monitors possible forms of displacement closely and tries to prevent them, but the available data make it impossible to link cause and effect.

From the viewpoint of cost-effectiveness the CRTF has been asked to indicate the specific measures that led to certain specific results. The CRTF seriously doubts if this will be possible. Among others, Hunter and Jeffery (1991 and 1992) and La Vigne (1991) identified significant variables with respect to the robbery risk. As these variables change over time, it might be preferable to monitor the trends in commercial robbery closely, thus closing the time lag between, for example, a new modus operandi and the preventive response (Ekblom, 1987).
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Telephones as facilitators of drug dealing

A research agenda

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One of the twelve techniques of situational crime prevention identified by Clarke (1992) is the control of crime facilitators, i.e. tools or objects that make it easier to commit crime. One such facilitator is the telephone, which assists in the commission of a vast array of offences, such as kidnapping, criminal conspiracy, industrial espionage, bomb hoaxes, fraud, sexual harassment (obscene phone calls) and prostitution ('call girls'). This paper deals with a relatively new phenomenon, the use of mobile telephones ('cellular telephones') in drug dealing, and considers what research is needed to identify feasible controls on such usage. As background to this discussion, brief reviews are undertaken of ways in which (1) developments in technology have expanded the role of telephones in crime, (2) telephones appear to facilitate drug-dealing and (3) constraints have been sought on the use of phones in dealing.

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Telephones and crime

The role of the telephone in the production of crime has expanded not just with the vast increase in the number of phones in use, but also with changes in technology which have made telephoning more convenient—and more anonymous. In the days when all phone calls had to be connected by an operator (who might then 'listen in' on the call), it was more difficult to use the phone for criminal purposes. There was always the risk of being overheard or of subsequently being identified. The capacity for subscribers to dial calls themselves, together with the vast expansion in phone use that this permitted, greatly reduced these risks. There was little risk of being overheard (except in cases where the police had 'tapped' the line of a suspected racketeer), or of the call being traced (unless a 'trap' had been placed on the line in response, say, to complaints about obscene phone calls). More recent technological changes, particularly the computerization of exchanges and the development of radio-telecommunications, is resulting in a further improvement in the convenience and accessibility of phone use—which will assist criminals as much as anybody else.

Computerization also makes possible, however, the development of specific countermeasures to frustrate some forms of telephone crime. In brief, these restrict the ability to make or to receive certain kinds of calls. Early forms of these controls, preceding computerization, are the blocked access to long-distance lines, common in offices and other places of employment, and the detailed listing of calls that, for many years, has been provided with the telephone bill in the United States and elsewhere. These controls either eliminate the opportunity for making expensive, unauthorized calls, or increase the risks of detection. New technology makes it easier to restrict the use of a particular phone to certain individuals (for example by the provision of a personal identification number, or PIN, that must be entered by the caller), to certain kinds of calls (for example, local calls of brief duration), or to a variety of users and destinations. In addition, those receiving calls can now screen them before deciding whether or not to answer and can obtain reports on the originating number of calls received. They can immediately return a call to the originating number without knowing that number and can, if necessary, block further calls from the number. These latter innovations make it easier to deal with unwanted, harassing or obscene calling.

Stimulated by the development of situational prevention, criminologists have begun to study countermeasures deployed to reduce the oppor-
tunities for specific telephone crimes. In New Jersey, the availability of Caller-ID (a device that displays the telephone number of an incoming call) was found to have reduced the incidence of obscene phone calls (Clarke, 1990). At Rikers Island, a New York City jail, the introduction of a new computerized phone system was shown to have cut phone costs in half through eliminating fraudulent access by inmates to toll lines (long-distance calls) (La Vigne, 1994). At the Port Authority Bus Terminal in Manhattan, an organized toll fraud racket centred on the terminal's 350 public phones (payphones) involving millions of dollars per year, was eliminated, first, by preventing access to the public phones outside rush hours and, later, by programming the phones to restrict access to long-distance lines (Bichler and Clarke, forthcoming).

Some important lessons from these studies should be noted before proceeding to the discussion of drug dealing. First, they show that technological solutions can be found for crimes facilitated by the telephone and such solutions may therefore be worth pursuing in the context of drug dealing. Second, these solutions can sometimes bring wider benefits in their wake; for example, removing access to toll lines at Rikers Island not only reduced fraud, but also reduced fights between inmates because there was no longer any competition for access to the phone. At the Port Authority Bus Terminal, the successful intervention not only eliminated fraud and restored use of the public phones to the commuters, but also helped to reduce much other crime. This was because the public phones were no longer a magnet for criminals who, once attracted to the terminal, preyed upon commuters and other terminal users (Felson et al., forthcoming). Similar ancillary benefits may be obtained through successful efforts to deal with drug dealing by restricting phone use. Third, the introduction of controls may be more difficult when a large number of phone users are affected, than in more restricted settings such as jails and bus terminals. Indeed, where Caller-ID has been introduced in states other than New Jersey (which was where it first became available) the telephone companies have been forced by privacy legislation to provide customers with the capability to block display of their numbers on Caller-ID equipment (Temple and Regan, 1991). Similar problems may be encountered in any attempts to modify the capabilities of mobile phones in the interests of reducing drug dealing.

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2 Even in the case of the bus terminal, the management was concerned about the loss of convenience for commuters brought about by the changes to the public phones since these restricted access to legitimate long-distance calling and access to voice mail.
Perhaps the most important lesson to be drawn from these reported successes, however, is one that is constantly re-learned in situational crime prevention projects – the necessity of thoroughly understanding the motives and modus operandi of the offenders involved. As argued elsewhere (Cornish and Clarke, 1986; Clarke, forthcoming), the rational choice perspective provides a useful framework for obtaining this understanding, though in some cases no very sophisticated study may be needed. In the small and restricted community of Rikers Island, for example, the nature of the phone misuse was well known to prison officials who were able to act effectively on that knowledge. In the case of the bus terminal, the nature of the phone misuse – whether for drug dealing, prostitution or toll fraud – did not become clear until systematic observations of public phone use had been conducted by the Project for Public Spaces (1990) and a detailed analysis had been undertaken by a telecommunications expert of data on calls made from the public phones.

In the case of Caller-ID, lack of knowledge about obscene phone calling made it difficult to evaluate its likely benefits and thus difficult to resist demands for the blocking option. While Clarke's (1990) study had found a substantial decline in obscene calls, his follow-up was brief and his study conducted soon after the introduction of Caller-ID. Its introduction was accompanied by highly effective television advertisements depicting an obscene caller being humiliated by the owner of a Caller-ID machine and it is possible that these advertisements materially contributed to the effects documented by Clarke. If so, these effects might be expected to dissipate and obscene phone callers might soon have learned that their chances of encountering Caller-ID were in fact relatively small (with less than 2 percent of customers subscribing to the service at the time of Clarke's study). They might also have begun to develop ways of dealing with this eventuality. For example, they could avoid that number in future, they might develop a longer conversational preamble to test for the presence of a machine, or they might start making their calls from public phones. In the absence of precise knowledge about the motives of obscene callers and the methods employed – for example, about the proportion that dial randomly rather than targeting particular women of their acquaintance3, and the proportion that are drinking and

3 Given that young and middle-aged separated and divorced women living in urban areas are disproportionately victimized by obscene calls and that random dialling is in fact quite difficult to undertake, Buck et al. (1995) argue that most obscene calling is not random.
masturbating (which might make it difficult to use public phones) – these arguments are difficult to evaluate.¹

Telephones and drug dealing

Unfortunately, detailed information about the role of telephones in drug-dealing is not available. While the image of the drug dealer equipped with a pager is a commonplace of contemporary culture, the role of telephone communication is barely mentioned in ethnographic research on drug dealing, even in recently published studies (Johnson et al., 1985 and 1992; Mieczkowski, 1990; Taylor, 1992; Williams, 1992; Adler, 1993). The omission is especially surprising in the American literature, given the large number of US cities where communities have been trying to combat drug dealing by limiting access to public phones (see below), but it is part of a wider pattern in which the mechanics of drug dealing has been neglected by ethnographers in favour of research into 'the lifestyle and community of heroin users (...) and the role of crime in the heroin economy' (Rocheleau and Kleiman, 1993, p. 2). Remedying this lack of information by fresh ethnographic work must therefore be a priority in any serious attempt to consider ways of controlling the use of phones in dealing.

Meanwhile, it is necessary to speculate about ways in which telephones are used in dealing and, in doing so, it is convenient to distinguish four main groups of actors, as follows:

- wholesalers who acquire and must dispose of large amounts of drugs;
- distributors who may work for wholesalers or may be free-lance and whose role is to deliver the drugs for retail;
- sellers who retail the drugs on the street;
- buyers who consume the drugs.

While recognizing that this classification may be oversimplified⁵, it should be adequate for the present purpose of analyzing the roles played by the telephone in dealing. For wholesalers, the telephone is likely to play a vital role in locating and purchasing bulk supplies and in communicating with distributors. For distributors, phones may be needed to coordinate deliveries with the seller and to collect payment; and for

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¹ Buck et al. (1995) have suggested that another new telephone service – phone sex through 0898 numbers (or in 1-900 in the USA) – may also reduce obscene phone calling by providing an alternative (legal) aid to masturbation.

⁵ Sellers may also be consumers of drugs. In addition, Johnson et al. (1992), distinguish ten different dealing roles.
sellers, as well as being a means of communicating with distributors and buyers, the phone may be source of information about such matters as police activity. For buyers, phones are sometimes used to contact sellers in order to set up deals (Rocheleau and Kleiman, 1993) or to order drugs for delivery (Conner and Burns, 1991)\(^6\).

Of these groups, the wholesalers and sellers are the least mobile, the former operating from a home or place of business (which is likely to have telephone service if not a mobile phone), and the latter from a street corner or other public place that may be served by a public phone. Distributors need to move around from seller to seller and back and forth to the wholesale source and, because of this mobility, are the group most likely to be using beepers and pagers. To respond to calls from sellers or wholesaler, they are likely to use public phones or mobile phones. When placing orders for drugs, buyers are likely to use the same phones for this purpose as they would for any other.

**Current efforts to constrain phone use in drug dealing**

Wiretapping of wholesalers phones and reducing sellers access to public phones are the two principal means currently employed of constraining phone use in dealing. Wiretapping affords some distinct advantages over other means of surveillance in gathering evidence for prosecution. Though not inexpensive, it has been found to be less costly than other forms of direct and electronic surveillance; it is less likely to be detected than forms of electronic surveillance which may require physical entry onto the property of offenders to install or remove devices; it frequently provides high-quality evidence even when the subject of surveillance is aware that a phone tap is in place; and it is generally resistant to court challenges (Criminal Justice Commission of Queensland, 1995). Both in the United States and elsewhere, wiretapping of phone conversations, principally between wholesaler and distributors, has provided vital evidence in successful prosecutions of organized drug dealers, for example in the 'Pizza Connection' and 'Blue Thunder' heroin cases in New York which are being studied by one of the present authors (M.N.)\(^7\).

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6 Conner and Burns (1991) refer to one case where a dealer established a toll-free number (1-800-WANT-POT) and hired five full-time messengers to deliver the orders.

7 'Starting on March 7, 1983, and lasting for more than thirteen months, Russo and other agents became a secret part to an estimated hundred thousand phone conversations, representing about a year of uninterrupted around-the-clock talk in the largest single wiretapping operation ever mounted by the FBI' (Blumenthal, 1988).
Despite its effectiveness and cost advantage, wiretapping is still too expensive for use against all but the most organized of wholesalers. The main way of constraining phone use by other actors in the drug transaction, particularly sellers, is by reducing access to public phones. This has the objective, to quote Mayor Richard Daley of Chicago who has made the issue something of a personal crusade, of shutting down 'outdoor offices for drug dealers and criminals' (Cocaine calling, 1994).

A scan of NEXIS, the computerized archive of national and local newspapers and magazines, reveals that in the past decade dozens of communities throughout the United States have experimented with ways to constrain the misuse of public phones. The problem seems to have been exacerbated by deregulation of the phone industry, which has resulted in a proliferation of companies that supply and install public phones. Often these companies are small and struggling to make a profit. They aggressively pursue new opportunities to install their equipment to the extent of flooding some neighbourhoods with public phones, and they may be resistant to complaints about the use made of their phones.

The problem is not just one of dealing. People who have no phone at home may be kept from using local public phones by dealers, while addicts and other undesirables are attracted to the places where the dealers have set up shop. The following comments by two Long Beach residents are typical of those reported in many other newspaper accounts (Kopetman, 1987): 'The people who need to use the phones are not allowed to use the phones because men conducting illegal drug trading keep the cluster of pay phones busy while intimidating anyone who might want to use them (...) We would like to have the streets cleaned up. We have drug addicts on the corner (...) You can hardly walk by the streets sometimes'.

The range of measures that have been taken to deal with drug dealing at public phones is quite varied, as shown by the following list:

- community pressure on local telephone companies to remove public phones or relocate them in better lit or supervised areas;
- city ordinances to license public phones, to approve their sitting,

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8 This list does not exhaust the possibilities. An ordinance has recently been passed in Fort Lauderdale that permits the city to cover a public phone with a zipped and locked canvas sack (Woolfe, 1995), and an attorney representing the Coin Payphone Association of Illinois, James Beckley, has also suggested the replacement of ordinary public phones with 'smart' phones that record incoming and outgoing calls and whose records could be subpoenaed in prosecuting drug dealers (Lundin, 1995).
and to ban them or limit their number at specific locations or categories of location;
— removal or modification of public phones by businesses such as convenience stores and petrol stations;
— modification of public phones to block incoming calls;
— installation of public phones with rotary dials which do not permit outgoing calls to pagers;
— permitting only operator-assisted calls or emergency calls during nighttime hours by blocking coin operation of the phones;
— increasing police patrols of specific phones;
— attaching labels to phones warning against drug dealing;
— establishing hotlines to receive reports about illegal activity at particular pay phones.

Since the removal or modification of public phones may mean that emergency services cannot be summoned quickly or that legitimate users are inconvenienced, such proposals may often be resisted. Martin Segal, executive director of the Illinois Public Telecommunications Association, was recently quoted as follows (Kirby, 1994): ‘Phones don’t sell drugs (…) People sell drugs. And why public phones? Why don’t they regulate mobile phones? Or how about the phones in peoples homes?’

The degree of inconvenience depends on the nature of the measures and this helps explain why so many different ones have been developed. In general, modifying the capacity of public phones seems less intrusive than their removal, although the result will often be the same. Leaving aside declines in revenue from drug dealing, the profitability of phones may fall to unacceptable levels when their uses are curtailed. For example, rotary dials prevent legitimate use of calling cards to make long-distance calls which are typically very profitable for the public phone owners. Technological solutions also have other limitations. For example, rotary dials on public phones do not prevent the receipt of calls from buyers and their capacity to prevent communication between sellers and distributors may be compromised if auxiliary tone diallers are used to by-pass the rotary dials.9

None of these limitations appear to have been comprehensively studied and, more generally, no evaluation has been conducted of measures to constrain public phone use despite the successes reported by newspapers.10 For example, a recent story reporting efforts to deal with public

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9 There is also the difficulty that the American Disabilities Act requires all public phones to be touch-tone.
phones serving three crack houses in a St. Louis neighbourhood quotes 'a city source' as follows (Viets, 1994): 'Two neighbourhood associations asked Southwestern Bell to change the pay phones (...) The gas station changed its phone to rotary dial. The convenience store had its pay phones removed. So did the restaurant (...) Two crack houses went out of business. The third one is still operating, but not so openly. We'll get it, too.'

Stories such as this invite questions about the response of the dealers. Did they simply close up 'shop' and go out of business or did they try to establish themselves elsewhere? And if they did, what were the consequences of this for their livelihoods, for their customers and for the neighbourhoods into which they moved? It may not be easy for dealers to find suitable alternative locations nearby that are not already taken by other dealers. Moving to a more distant location may result in the loss of customers and it may take an unacceptable time to establish a new group of customers. Sometimes displacement of dealing, even when it does not diminish in volume, may bring community benefits because of reduced disturbance to law-abiding residents. On the other hand, depending on its new location, the displaced market could lead to even more community disruption. It is surprising that so little is known about these matters of such policy importance, and a comprehensive evaluation of the displacement\(^{11}\) and other effects of measures directed against public phones is another priority for research in this field. The advent of mobile phones has not rendered such research obsolete because many dealers continue to rely on public phones and newspapers continue to report new initiatives to constrain their use. They may offer advantages not possessed by mobile phones, including that they are less likely to be tapped, are less expensive and are more readily accessible to disorganized offenders. Their use on the street in poor neighbourhoods is also less likely to attract the attention of police. These possible advantages of public phones should be studied in the context of the more general ethnographic study of phone use advocated above.

\(^{10}\) John Eck (personal communication) has suggested that this may be because the measures possess face validity and are generally inexpensive.

\(^{11}\) Evaluations of situational prevention measures have generally found only limited displacement of crime (Gabor, 1990; Eck, 1993; Hesseling, 1994). For example in his review conducted for the Dutch Ministry of Justice, Hesseling found no evidence of displacement in 22 studies and, in the remaining 33 studies where some displacement was found, this was never complete.
The advent of mobile phones

Despite some of the advantages of public phones mentioned above, mobile phones undoubtedly offer the same advantages of convenience for drug dealing as they do for any other business. They can also be more difficult to tap, though the successful prosecution of the ‘Blue Thunder’ heroin case mentioned above relied heavily on the tapping of mobile phone conversations. In this case, however, the phones were legally purchased and the investigators were able to obtain their identifying numbers. When mobile phones have been stolen, their numbers can only be obtained by using electronic scanners to intercept the numbers they transmit as a way of identifying themselves for billing purposes (McCulley and Rappaport, 1993). When these numbers have been obtained, there is the additional difficulty that wiretapping laws generally require that authorization for tapping is restricted to a specific identified phone (or phones). By the time the identifying numbers have been intercepted and the wiretapping authorization has been granted, the stolen phone may have been replaced by another with a different set of numbers.

The technology that makes it possible for law enforcement officers to intercept the identifying numbers of mobile phones, unfortunately, is also available to criminals and can be used to ‘clone’ phones. Cloning involves modifying a phone so that when calls are made from it, the telephone system misidentifies it as the phone of a different – and legitimate – user. Cloning provides drug dealers and others with virtually unlimited, low-risk unauthorized access to telephone communication. Three sets of equipment are needed to clone phones:

- a supply of mobile phones, which may be stolen;
- a scanning device (known as an electronic serial number [ESN] monitor, normally used to service mobile phones and networks) that enables a mobile phone’s eleven-digit identifying number and the customer’s telephone number to be captured as the phone is used to make calls;
- a personal computer with a program linked to a ‘chip burner’ that enables the ‘captured’ number to be re-programmed into the supply of mobile phones.13

12 In an attempt to reduce the risk of successful prosecution the wholesaler concerned purchased 25 mobile phones, regularly switched between phones, and used many coded words and phrases – all to no avail.

13 Software and instructions on how to clone phones are reportedly available on the Internet
To obtain the numbers for re-programming, criminals position themselves up to 100 feet from places where people frequently use mobile phones, such as major highways or airport parking lots. In Manhattan, favoured locations are reported to be the exits from the Holland and Lincoln tunnels where commuters often call their offices to give notice of their arrival.\textsuperscript{14} (In some case, numbers may be obtained not by scanning the airwaves, but by breaching the security of mobile phone suppliers.)

Cloned phones can be sold for as little as $100 and many are thought to be purchased by drug dealers. Calls are billed to the customers whose phones were cloned and who may discover the frauds only on receiving their monthly bills. This means that the useable life of a cloned phone is usually no more than one month, though it can be re-programmed with new captured numbers.

Manufacturers of mobile phones and the companies supplying cellular service have been seeking ways to prevent theft and cloning. Suppliers now routinely check the identity of the purchaser to prevent fraudulent acquisition of phones and, in an attempt to reduce toll fraud, they supply phones that cannot be used to dial direct to certain foreign countries. Many now also provide PIN numbers that must be entered each time the phone is used, though these PINs can be captured by electronic scanners. The suppliers have also developed software to monitor customer calling patterns and alert investigators to any suspicious new patterns, but the effectiveness of this software is unknown (Cellular fraud prevention gets a technology boost, 1993).

Some new mobile phones are supposed to be impossible to re-program, but, according to a telecommunications industry source quoted in a recent newspaper article, they have proved vulnerable to tampering (Kinsman, 1994). Digital encryption technology will make cloning more difficult, but converting all phones to digital operation will take many years. In the meanwhile, a new form of fraud has been developed. Known as 'tumbling', this involves equipping a mobile phone with a computer chip that generates ('tumbles') a different combination of identifying number and customer phone number for each call made (DeMaria, 1994). This makes them impossible to tap and very difficult to identify.

\textsuperscript{14} Planned 'wiring' of the tunnels so that commuters can call when still underground may halt this practice.
This brief excursion into cloning suggests that technological development is working in favour of drug dealers and that their access to secure and inexpensive mobile phone communication seems assured for some time. Faced with this situation, which, because of the technical aspects, they are ill-equipped to understand, it may be tempting for criminologists and other social scientists to withdraw and to hope that a technological solution will be found. As argued above, however, an important lesson of the earlier research on telephone crime is that technological solutions need to be carefully tailored to the modus operandi of offenders. Once again, this calls for detailed ethnographic work on phone use in dealing. We have discussed above the topics that need to be addressed with regard to public phones. Concerning mobile phones, there is a need to understand: how they are used in dealing and by whom; their perceived advantages and disadvantages over other kinds of phones; how they are used in conjunction with public phones and beepers and the extent to which they render the latter kinds of phone obsolete; how the phones are obtained, whether legally or not; the advantages and disadvantages of cloned phones and precautions needed in their use; and the nature of the business links between suppliers of cloned phones and drug dealers.

It would be valuable to know what proportion of cloned phones end up in the hands of dealers and what proportion in the hands of other users. These latter might include: illegal immigrants who are afraid to obtain regular phone service; criminals making a business out of selling illegal access to the toll lines; and other users who need to make frequent long-distance calls in the course of undertaking legal or illegal businesses. One route to obtaining this information might be through interviews with a sample of people involved in cloning; another might be through an analysis of the origins and destinations of calls made by cloned phones. It is sometimes claimed, for example, that large proportions of phone calls made from cloned phones at night and at weekends originate in drug-dealing neighbourhoods and it would be useful to establish the validity of the claim. Repeating an analysis of calls made from cloned phones in the future might also yield valuable information about trends in their use for dealing.

If cloned phones do play an important part in drug dealing, it would be important to obtain detailed information about the mechanics of cloning in the course of interviewing offenders since this information would help to determine whether opportunities for cloning could be blocked. For example, little is known at present about the source of supply of the equipment needed. Nor is it known how frequently the
numbers to be cloned are obtained from mobile phones that have been stolen, for example from parked cars, and how often they are intercepted when the phones are in use. Useful information on this matter might also be provided by detailed interviews with victims to see what proportion actually had their phones stolen. If interception of transmitted numbers proved to be the dominant source of cloned phones, then interviews with a samples of victims and a control group of non-victims might yield valuable information about high-risk locations for mobile phone use. This information may be useful for law enforcement purposes, in warning users and in designing ways to reduce access to favoured sites by cloners.

Conclusions

Telephones are as indispensable to drug dealing as they are to any other form of business enterprise. They also help to solve the central problem encountered by parties to all illegal transactions of minimizing risks in the exchange process (Eck, forthcoming). They do this by removing the need for the face-to-face contacts that provide the opportunity for violence or arrest. This means that drug interdiction strategies focused on the telephone should seek to increase the riskiness of their use (as in wiretapping) as well as to impede their communication value by making them more difficult to use. Many communities have tried to make public phones less convenient to use in dealing, but little attention has yet been devoted to impeding the use of beepers and mobile phones. These devices, particularly cloned phones, appear to provide drug dealers with highly convenient forms of communication with few risks of arrest. There is an urgent need for information about the use made of these phones and the means by which they are acquired by dealers. Much of this information could be provided by ethnographic research informed by the rational choice perspective, which focuses on the decision making of offenders and the variables influencing choices. Studies of this kind have assisted thinking about prevention of shoplifting, robbery and burglary (see Clarke, 1995, for a review). To date, few similar studies have been undertaken of the mechanics of drug dealing, though, as mentioned above, the need for this research has previously been identified.

In addition to more detailed studies of drug-dealing transactions, this paper has identified the need for evaluations of measures directed against public phones and, especially, studies of the mechanics of cloning. The market among drug dealers may be fuelling the develop-
ment of cloning and, in turn, if cloned phones do significantly assist dealing, their wider availability could contribute to a worsening of the drug problem. Cloned phones also have other criminal uses so that their wider availability could have more general harmful consequences. For all these reasons, ways to impede cloning need to be found. This task cannot be left to the manufacturers and suppliers of mobile phones alone since effective countermeasures require detailed information about illegal uses. Some of this information could be supplied by the police, but they are hampered just as much as social scientists by lack of technical knowledge. What seems to be needed in conducting the necessary research is a partnership between technologists, law enforcement and ethnographers. This kind of interdisciplinary work is much more frequently advocated than accomplished. Obtaining the necessary funding and achieving the necessary cooperation between people of different backgrounds and disciplines seem very difficult. Nor can it be assumed in the present case that the various parties would share the same objectives. Mobile phone companies may be more directly concerned with theft of phone service than with the use of phones in drug dealing. Indeed, there are many examples of telephone companies resisting crime prevention measures (for example, ones directed against public phones) that would also reduce telephone usage and thus their revenues. Finding a way through these various barriers to conduct useful policy studies will pose a significant challenge to the research community.

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Crime institute profile

Institute of Criminology at the Faculty of Law in Ljubljana, Slovenia

Ivanka Sket

The Institute of Criminology at the Faculty of Law was established in 1954 as the first criminological institute in the former Yugoslavia. It was founded by the Faculty of Law, University of Ljubljana and although it soon became independent, it has always maintained very strong links with the founding faculty. Since the very beginning, the institute's main activities have been: research, teaching and dissemination of information, and organization of library and documentation service.

Research work

In this brief presentation of the institute it is not possible to provide an extensive overview of research work carried out in the past forty years, so we shall restrict ourselves to the principal activities and the current situation.

The institute, which was established to investigate the problems of crime and deviancy on the one hand, and the reaction of society to these phenomena on the other hand, has dealt since the beginning with very different types of criminological research, from purely theoretical and basic, applicative, empirical, historical, longitudinal and follow-up research to the comparative and cross-cultural studies. The majority of studies were, however, empirical and applicative and tried to explore the current trends of crime and other deviant phenomena, to analyze the existing social problems and to apply its research results to the social practice by proposing adequate solutions to the policymakers. In these
efforts, the institute was sometimes more, sometimes less successful, depending on the general social climate as well as on the attitudes and orientations of decisionmakers in criminal justice and other agencies dealing with crime and deviance.

Research policy of the institute has been based on the assessment of the relevant social problems on the one hand, and on the current criminological trends in the world, on the other. In tracing the main directions and guidelines of research work, the institute has to take into consideration also the needs of agencies and organs dealing with crime and deviance. In this connection, it is necessary to mention the role of the Board of the Institute, a body composed of both members of the institute (researchers) and of the members of the community, generally representatives of criminal or juvenile justice agencies. In planning its research activities, the institute has to take the suggestions of this Board into consideration and formulate its research policy in accordance with the needs uttered by the representatives of these agencies. The institute also submits to this board its annual research plan.

Research carried out by the institute covers the most diverse areas of crime and criminal justice. In this profile we shall present only the current fields of research and focus on some of the ongoing research projects. Among the current areas of research we should mention economic crime (connected with the processes of transition), children's rights (especially how they are observed and implemented in Slovenia), criminal policy (new orientations in criminal policy due to the political, social and economic changes taking place in the post-socialist countries, criminal policy and illicit drugs), theoretical criminology (radical criminology and its implications for the criminal law and criminal justice), penology (rights of the prisoners and European prison rules, social climate in prisons), victimology (children as victims of abuse, violence in schools, UN International Crime Survey), crime and violence (verbal violence, hate crimes), juvenile justice (renewal of residential institutions for juveniles, introduction of alternative sanctions for juveniles).

Projects

Among the ongoing research projects we would like to present the following ones:

Who are bullies and their victims: A study of children in elementary school is the first Slovenian research project dealing with this topic. Its aims are to conceptualize the phenomena of peer aggression and abuse
in the framework of our educational institutions and thinking, to collect data on its frequency in phenomenology, to study the characteristics of victims, bullies and their psychosocial context and to facilitate the development of the appropriate reactions to it.

In the pilot phase of the research project, interviews with children, parents and school workers of different professions were conducted, to learn about their perceptions and views. The results indicate that school staff do not know much about bullying and that they are relatively resistant to the notion of the school's responsibility for violent and abusive actions among peers (pupils). In the second part of research a questionnaire based on Dan Olweus’ questionnaire on bullying was used. The sample consisted of 1380 pupils from six schools, aged 8 to 15. The results show a remarkably higher proportion of Slovenian children reporting being bullied than is the case in Olweus' data (1993) from Norway. In the third phase, the data on the self-reported victimization and bullying were compared with teachers' perceptions of this phenomenon and pupils' sociometric status and their self-concept. On the basis of all research results, strategies have been developed in a limited number of schools, in each of them according to its own interpretation of the phenomenon of bullying and according to the skills and knowledge available, and its past experiences in dealing with the problem.

* Institutional treatment of maltreated, abused and neglected children in Slovenia* is a three-year study pursuing two goals. The first is an exploration and analysis; using existing data and survey methodology we want to establish the scope and the structure of maltreatment in Slovenia, at least as known to the institutional network. The second goal is action-research oriented. A working group of leading professionals and government representatives has been established with the task to develop guidelines for the inter-service cooperation. Recently, the group has been working on the proposal of a separate law on the state's measures for the protection of children in need.

The project *Cultural aspects of violence* deals with the problem of culture-related violence. Political powers in contemporary society are helpless in dealing with new forms of racial, national and sexual violence which manifests itself by verbal attacks or open physical aggression. These forms of violence are of public as well as private concern and are pertinent not only to the societies in transition, but also to the more developed Western democracies. Using a interdisciplinary theoretical
approach, the research project explores the following issues: why does the subject engage in violence, why do people use open aggression towards each other, what racial, sexual and ethnic forms of violence exist in contemporary society and how does the law respond to the violence. It analyzes the dilemma of how to react to violence, when a culture, in the name of its understanding of human rights, engages in practices that other cultures perceive as harmful. The research project also considers the possibilities of preventing violence arising from cultural differences.

The purpose of research project *Accommodation capacities and standards of correctional institutions* was to examine the correctional standards in use in Slovenia and to compare them with the contemporary standards in the world. The research deals first with the sentencing policy of Slovenian courts and its impact on the population of correctional institutions. It analyzes trends of prison population in the period 1973-1993. An important part of the research is devoted to the detainees' and prisoners' rights as formulated by the international standards, and how they have been observed in Slovenia. The goal of the empirical part of research was to assess the conditions in which Slovenian correctional institutions operate, and to formulate adequate standards. For this purpose, questionnaires were administered to and completed by 7 correctional institutions, 116 pretrial detainees and 96 prison inmates. Answers indicated that correctional institutions were aware of the inadequate accommodation, sanitary and hygienic standards with respect to incarcerated persons and that they were planning to improve the present conditions. Research gives proposals for improvement of standards and their harmonization with the European standards.

The research project *Guidelines of criminal policy in Slovenia* deals with phenomenological, etiological, victimological, penological and criminal policy problems which characterize Slovenian society in the period of transition. Special attention is devoted to juvenile delinquency, organized crime, drug abuse, violence and economic crime. The study indicates that the state's repressive mechanisms have only limited possibilities of crime prevention. On the basis of the analysis of economic, cultural and political changes in Slovenian society, research points at the most important criminogenic factors on which criminal policy should be focused. Researchers plead for the limitation of repression and absolutely oppose to whatever politically motivated increase of penal repression, especially one which would restrict and affect human rights and freedoms.
So far the institute has conducted more than 110 research projects. The majority of them has been carried out in teams, especially all empirical researches, while some of them – particularly those which are more theoretical – were individual research projects. The institute has also been engaged in some of the international research projects, among the most recent being a cross-cultural study on the rights of children in school and at home, and the UN International Crime Survey.

As criminological research carried out by the institute has been interdisciplinary, it has always engaged researchers of different profiles: lawyers, psychologists, sociologists, economists and when necessary, also some other experts. The institute, which is headed by prof. dr. Alenka Selih, operates with eight full-time researchers (mostly senior researchers), as well as with a librarian and information specialist working in the library and documentation service. If necessary, the institute engages also part-time researchers, to assist in individual research projects.

The institute is funded mainly by the Ministry of Research and Technology of the Republic of Slovenia, to which it submits research proposals. As this source of income is not sufficient, the institute applies to other institutions for additional funding. Besides that, it does contract researches for individual organizations or agencies. Two of these were a recent study on child abuse, conducted for the Ministry of Education, and a study on drug abuse which is to be carried out for the Ministry of Health and Social Welfare.

**Teaching, training and information**

The institute's researchers are not concerned with research work alone. Practically all of them teach also criminology at one of the social science faculties having this subject in their study programme (Faculty of Law, Faculty of Pedagogy, Superior School for Social Work, Faculty of Arts – Department of Psychology).

In order to disseminate its knowledge or findings research, the institute has from the beginning engaged in organizing conferences, training seminars or other forms of organized training or teaching. This has proved to be one of the most effective ways of transmitting knowledge to policymakers, professionals and practitioners working in the institutions or agencies dealing with crime and deviance and its perpetrators. Recently, the institute has in cooperation with the Council of Europe, organized an international conference on criminal policy of countries in transition, which has been attended by the representatives of
practically all former socialist countries.
Researchers have also been very active in publishing both in Slovenia and abroad. Their research results are mostly published partially, i.e. in periodicals, but recently it is not rare to see entire research studies being published, and in this way made available to a broader public. In Slovenia, research results are generally published in the professional periodical *Revija za kriminalistiko in kriminologijo* but also in other legal or sociological periodicals.

From the beginning the institute has run a library and documentation service. It systematically collects criminological literature, i.e. books and other relevant material and receives on a regular basis about 100 titles of periodicals annually. At present library funds contain about 19,000 volumes. All material obtained by the library has been classified (lately indexed) and entered in subject card catalogues (since 1987 in a computerized bibliographical database). The library does not serve the needs of the institute's researchers alone, but it is open to the general public (students, teachers, researchers of social science faculties and institutes, professionals and practitioners from criminal justice agencies and institutions). The library lend all available materials to its users and additionally provides extensive information services, such as information retrieval, selective topical bibliographies etcetera. At present, its data base contains 11,000 indexed bibliographical references, mostly in foreign languages. Contemporary communication devices enable the library to send via Internet information or bibliographical references to people in need of such information. Recently the library has augmented its connection with the world through the membership in WCILN (World Criminal Justice Library Network) and via Internet, it is linked also to UNCJIN (United Nations Criminal Justice Information Network), which is an extremely rich source of criminal justice information and which provides the institute with the opportunity to effectively participate in the international exchange of information.

**Future perspectives**

The last years have brought tremendous political, economical and social changes which are reflected by the institute's research work. The period of transition in the former socialist countries has been closely connected with various sorts of deviance which cannot remain unexplored or simply ignored by the institute. An example is economic crime which is connected with the processes of privatization and which gave rise to all kinds of malversation, bankruptcy fraud and such. On the other hand, in
approaching Europe, Slovenia will have to re-examine the operation of its criminal and juvenile justice system or individual segments of this system and to see how these are harmonized with the internationally adopted standards. Consequently, the work of the institute will in the future be focused on the investigation of various social problems – drug abuse, different kinds of violence, new forms of crime, and other problems which may arise as well as on the consideration of criminal policy measures to meet the new, changed conditions. By following the trends in deviant behaviour the institute will also participate in the creation of an adequate criminal policy responding to these phenomena.
Abstracts

This section contains a selection of abstracts of reports and articles on criminal policy and research in Europe. The aim of publishing these short summaries is to generate and disseminate information on the crime problem in Europe. Articles that generate comparative knowledge are seen as being of special interest. Most of the articles have been published in other journals in the English language. More information can be supplied by the RDC Documentation Service. Single copies of the articles mentioned in this section can – when used for individual study or education – be provided by the RDC Documentation Service at your request. A copy charge is made.

RDC Documentation Service
P.O. Box 20301
2500 EH The Hague, The Netherlands
Tel: (31 70) 3706553;
fax: (31 70) 3707948

Adler, H., L. Lidberg
Characteristics of repeat killers in Sweden
*Criminal Behaviour and Mental Health*, vol. 5, 1995, no. 1, pp. 9-13
This is a Scandinavian report comprising 21 Swedish repeat killers who have been sentenced at more than one trial. The follow-up ranged from 1 to 18 years. Data were collected from the Swedish General Criminal Register, which includes all reported sentences except fines. All forensic psychiatric reports were studies. The traits of the repeat killers studied include: time interval between offenses; victims; methods of killing; other violent activities; psychiatric diagnoses; family history; age and nationality.

Bayley, D.H.
A foreign policy for democratic policing
*Policing and Society*, vol. 5, 1995, no. 2, pp. 79-93
Police institutions fundamentally affect the character of political development. Because police are the most visible coercive instrument of government, their actions powerfully influence whether government is perceived to be legitimate. The arising states in eastern Europe and the former Soviet Union look to foreign police forces in an attempt to reform their own police forces. Using comparative and historical material, this paper analyzes what police policies exist and which lessons can be learned from the existing systems. The paper concludes by outlining the dilemma that democratic development through police reform must confront, and specifies eleven principles that should guide the development of new, democratic police-policy.

Bless, R., D.J. Korf, M. Freeman
Open drug scenes: a cross-national comparison of concepts and urban strategies
Several new concepts have originated in the international debate on drug policy interventions in recent years. 'Open drug scenes' is one of these concepts. Findings, predominantly qualitative, from 9 European cities are presented. From a
contrast analysis, the concept of open drug scenes is elaborated along three dimensions (visibility, size and site), resulting in a typology of local drug scenes (concentrated open scenes, dispersed open scenes and hidden scenes). This typology is then confronted with local definitions and perceptions, as well as with major issues in the local policy debate on drug problems. As a next step two contrasting strategies to control drug scenes are presented and evaluated.

Curran, D., et al.
Longitudinal aspects of reconviction: secure and open intervention with juvenile offenders in Northern Ireland
This study examines baseline and comparative serious offending among a large sample of 592 male juvenile offenders sentenced to secure and open forms of residential custody in Northern Ireland training schools. Analysis of baseline offending reveals no significant difference in prior seriousness of offending between juvenile offenders placed in secure custody compared to open residential custody. Trend analyses of subsequent reconviction show that the additional level of reconviction associated with secure custody is of the magnitude of 7% to 15% at one and three year follow-up periods.

Feld, B.C.
Juvenile justice Swedish style: a rose by another name?
Justice Quarterly, vol. 11, 1994, no. 4, pp. 626-650
American juvenile courts are neither real courts nor a social welfare system. Rather they combine social welfare and social control, and virtually assure that neither purpose will be achieved. Sweden, by contrast, formally attempts to uncouple social welfare from penal social control by providing a social welfare system that nominally responds to youths on the basis of their service needs, not their criminal behaviour. Sweden also does not have juvenile courts; youths age 15 and older are tried in the same criminal justice system as other offenders. Yet Sweden formally recognizes that youthfulness mitigates criminal responsibility, and provides shorter sentences for young offenders because of their reduced culpability. Despite Sweden's attempts to separate welfare from criminal social control for young offenders, a youth's crime and recidivism are linked closely to compulsory "treatment" in the welfare system. Sweden's welfare and criminal justice systems initially appear to differ significantly from American juvenile courts, but the compulsory provisions of its welfare system operate in remarkably similar fashion. Recent legislative reforms acknowledge that a welfare ideology masks the connection between offense and sanction, and propose that coercive sanctions be applied only by criminal courts.

Galati, S.
Alternative measures in Italy
The alternative measures to detention have been introduced in Italy by Act 1975 n. 354 which reformed the penitentiary system (and has since been modified by Act 1986 n. 663). After having explained the importance of the 1975 and 1986 reforms, the author describes the structure, the evolution and the normative
base of the alternative measures which those reforms have brought about. The following alternative measures are described: entrusting to the social service (also with alcohol and drug addicts), domiciliary detention, semi-liberty, early release and special leaves. Attention is paid to the supervisory magistrature in relation to alternative measures, the link between the ordinary magistrature and the supervisory magistrature, and the reality of alternative measures in Italy.

**Greer, S.**

De-centralised policing in Spain: the case of the autonomous Basque police
*Policing and Society, vol. 5, 1995, no. 1, pp. 15-36*

The autonomous Basque police (Ertzaintza) is one of the newest police forces in Europe, and one of the many products of the liberalisation, democratisation and de-centralisation of the Spanish state since the death of Franco in 1975. This article traces its historical origins from the early modern period, discusses its key characteristics, explains the complicated legal framework which surrounds it, and reviews the debate about its current problems and prospects.

**Hope, T.**

Crime and social order

To investigate crime and order issues as experienced by society at large, the Economic and Social Research Council (ESRC) has commissioned a three-year, 2.1 million pound research programme which will inquire into the contemporary conditions of crime and social order in Britain and set these in comparative and historical perspective. Through its 21 research projects and associated activities, the programme aims to provide a context in which to place the recent growth in crime, and in concern for public order, so that policy-making and opinion might be informed by a broader and more considered view of the nature of crime in Britain today.

**Konstantinova, S.**

Liberalisation of Bulgaria's foreign exchange regime and the prevention of money laundering

Since 1991 Bulgaria has embarked upon legislative changes which mark the abandonment of centrally planned economic management in favour of free economic enterprise. This has entailed the adoption of a new constitution and changes in laws governing the operation of banks, credit and foreign exchange activities. In particular the foreign exchange regime seeks to liberalise access to the foreign exchange market whilst controlling those aspects to destabilise the foreign exchange regime itself, criminal activity and money laundering.

**Maguire, K.**

Policing and counter-insurgency in the Basque country: the problems of policing in an ethnically divided society

This article examines the problems of policing and counter-insurgency in the Basque region of Spain. The article begins by considering the background to the Basque conflict and in particular the problems faced by the Spanish police involved with the nationalist terrorist
group Eurzkadi ta Azkatasuna ("ETA"). It then moves on to look at the evolution of ETA, the problems of policing and counter-insurgency and the issues of international cooperation against terrorism. Finally, there is a discussion of the problems raised by the policy of attempting to re-insert terrorist groups into the democratic process.

Mauer, M.
The international use of incarceration
*Prison Journal*, vol. 75, 1995, no. 1, pp. 113-123

A 52-nation survey on the international use of incarceration shows a broad variation in the degree to which countries make use of imprisonment. The survey shows that Russia and the United States now lead all other nations, with an incarceration rate that is 5-8 times that of most industrialized nations. Although rates of violent crime in the United States are considerably higher than in other nations, this has not been the primary factor leading to the 155% increase in new court commitments since 1980 because 84% of the increase was due to drug, property, and public order offenses. Cross-national comparisons of incarceration have found that sentence length is a key variable in explaining differences in the use of incarceration and that relative punitiveness may be a function of the degree of general societal inequality.

Moiseev, V.P., R.E. Rogers, R.D. Joy
The use of narcotics and other controlled substances in the Russian far east
*C.I. International*, vol. 11, 1995, no. 3, pp. 11-16

Drug use in the Russian Far East dates back to the pre-Bolshevik period. War tends to lead to increases in both drug use and trafficking, as did the Russian Civil War and the resultant foreign intervention. This paper analyzes the conditions which were conducive to widespread distribution of illegal substance in the Far East region following World War II, including a highly developed drug distribution network. Detailed profiles of the region's drug users are presented along with explanations for their drugs, especially among the young people.

Robert, P.
A lawmaker's headache: pretrial detention
*Penal Issues*, 1995, no. 6, pp. 3-5

This paper describes the application of the sociology of law approach to pretrial detention, through a collective research project in which sociologists, historians, jurists and political scientists worked together for two years under the auspices of the Groupe Européen de Recherches sur les normativités (GERN). They analyzed the main laws - or bills - which have affected this question since the late eighteenth century, and compared them with what transpired in neighbouring countries.

Serfaty, A., M. Brodin, P. Lombrail
A comparison of HIV-preventive strategies and legal sanctions against drug use in the European Union
*European Addiction Research*, vol. 1, 1995, pp. 115-120

The study compared the delay in implementing HIV-preventive responses for injecting drug users with the severity of legal sanctions against drug use in the European Union (EU). The delay from first reports of AIDS cases related to injecting drug use (IDU) to initiation of measures to increase needle availability was analyzed. The EU countries differed both in the
nature and implementation date of IDU-preventive measures. At one extreme, the Netherlands initiated a needle exchange program late in 1984, 6 months before the first diagnosed IDU AIDS cases. In contrast, in 1993, Belgium did not yet implement needle exchange programs.

Shelley, L.I.
*Post-Soviet organized crime: implications for economic, social and political development*
*Demokratizatsiya*, vol. 2, 1994, no. 3, pp. 341-358
The collapse of communism may not lead to democratization and the transition to a competitive capitalist economy. Instead, the pervasiveness of organized crime may lead to an alternative form of development - political clientelism and controlled markets. The control will come from the alliance of former Communist Party officials with the emergent organized crime groups, groups that currently enjoy the preponderance of capital of the post-Soviet states. Rapid economic differentiation in income and wealth is already occurring, a process that will accelerate as privatization proceeds.

Soeters, J., G. Hofstede, M. Van Twuyver
*Culture's consequences and the police: cross-border cooperation between police forces in Germany, Belgium and the Netherlands*
*Policing and Society*, vol. 5, 1995, no. 1, pp. 1-14
This paper deals with cultural and organizational differences between police forces in Germany, Belgium and the Netherlands. In order to get an appropriate understanding of the cross-border collaboration in this region it was necessary to collect information on various levels of observation. It was decided: 1) to interview significant "witnesses" within the police forces, who by position or by personal interest had shown a specific commitment with cross-border cooperation; 2) to administer a questionnaire and to interview a sample of ordinary police officers from the forces in the different regions; 3) to administer a questionnaire to four samples of students in the regions. Attention was paid to the national cultures and the cultural and organizational features of the police in these regions.

Van Duyne, P., A.A. Block
*Organized cross-atlantic crime: racketeering in fuels*
There is concern about penetration of organized crime in the legitimate business. This penetration can take various forms, ranging from a complete 'take over' to a veritable symbiosis between crime-enterprises and the legitimate industry. This paper describes the interaction between crime-enterprises in the mineral oil market in the United States and North-Western Europe. It reveals that organized business crime is not just a concern for the United States of Europe alone. If the entrepreneurial landscape has similar features and there are possibilities of personal bridgeheads organized business crime obtains cross-border, transatlantic dimensions. The paper questions the selective attention of law enforcement to easily recognizable crime and the morally dubious attitude of legitimate industry taking advantage of the profitable offers by criminal entrepreneurs.
Van Wormer, K.
Whistleblowing against the company: a case of ethical violations at a Norwegian treatment centre
The aim of this article is to filter out from the available relevant literature a framework for the social career of the whistleblower. Then the author applies this framework to a personal situation. She wants to present the reality of whistleblowing in its stunning complexity, and to present an analysis with which every thoughtful social worker can identify. The first portion of the article places ethical resistance in a theoretical context. Attention is paid to definition of whistleblowing and to the institutional context within which it occurs. The common role of the worker in society is discussed. In the second half the author depicts her own experience as a social work supervisor at an unidentified treatment centre in eastern Norway. Implications for social workers and social work education are provided.

Verthein, U., P. Raschke, J. Kalke
Methadone therapy in Hamburg
Methadone treatment for opiate addicts as a structured form of therapy has been introduced in Hamburg in the summer of 1988. The number of patients in substitution has been increasing ever since. Since 1991 scientific follow-up research has been done. This article presents a number of selected results, which show the overall positive effect of methadone therapy.

Wakefield, B., J.D. Hirschel, S. Sasse
Public prosecution in England: resistance to change in a major police force
In 1985 the English Parliament passed the Prosecution of Offenses Act, which fundamentally changed the process for prosecuting crimes in England and Wales. The power of prosecution, exercised for some 150 years by the police, was removed from them and entrusted to an independent entity entitled the Crown Prosecution Service (CPS). The objectives of this article are to examine the rationale for implementation of the Crown Prosecution Service, to discuss the problems and benefits of this service since its inception, and to evaluate the attitudes and reactions of police constables and management-level officers to the new system.

Wemmers, J.-A.
Victims in the Dutch criminal justice system: the effects of treatment on victims’ attitudes and compliance
The present study attempts to address the question of how victim notification influences the relationship between victims and the criminal justice system. It examines empirically the effects of victim notification on their satisfaction with the performance of the public prosecution, their feelings of obligation to obey the law and law-abiding behaviour. It does so by reporting the results of a survey that was conducted as part of the evaluation of new measures to improve the position of victims within the criminal justice system, which are currently being introduced in the Netherlands. Procedures that allow the
passive participation of victims in the
criminal justice procedure are judged to
be more fair than procedures which
exclude victims. Moreover, how victims are
treated by the prosecution has a
significant impact on their subsequent
attitudes towards authorities and their law
abiding behaviour. Following a review of
the literature concerning the impact of
victim participation in the criminal justice
system and a description of recent
developments in the treatment of victims
in the Dutch criminal procedure, the
method and results of the present study
are described. The paper closes with a
discussion of the findings and their
implications for victim policy.