

HOME OFFICE RESEARCH STUDY NO 34

# Crime As Opportunity

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REPORT

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## HOME OFFICE RESEARCH STUDIES

'Home Office Research Studies' comprise reports on research undertaken in the Home Office to assist in the exercise of its administrative functions, and for the information of the judicature, the services for which the Home Secretary has responsibility (direct or indirect) and the general public.

On the last pages of this report are listed titles already published in this series, and in the preceding series *Studies in the causes of Delinquency and the Treatment of Offenders*.

# Foreword

This report attempts to show that a closer study of opportunity (in the physical sense) as one of the factors associated with offending might help to redress an imbalance in criminology brought about by concentration on the social and psychological characteristics of known offenders. It might also help to provide a sounder basis for those crime prevention measures, also in the physical sense, which seek to reduce opportunities for crime.

Such points are expanded in the first part of the report, which offers a theoretical perspective for the two empirical studies which follow. Whilst acknowledging that the concept of opportunity is a complex one, the authors propose a classification of opportunities for crime which might guide criminological investigation. They suggest that the opportunities offered by lack of surveillance or physical security (as opposed to those presented by the abundance of stealable property or by people's patterns of activity) are those which criminologists could most usefully examine in relation to crime prevention practices. They also recognise, however, that any examination of the role opportunity plays in crime must deal with the question of whether measures which physically restrict opportunities for offending lead to the reduction of crime or simply to a 'displacement' of it elsewhere.

The empirical studies reported examine two forms of offending in terms, respectively, of security and surveillance. The first looks at the effect on patterns of car stealing of the fitting of steering column locks to all new cars in this country since 1971. It shows on the one hand, that cars protected by such locks have a reduced chance of being driven away illegally; but, on the other hand, that their increased security has in all probability resulted in older vehicles being stolen. The second study examines how supervision of passengers by the drivers and conductors of buses affects the extent and location of bus vandalism and confirms that more damage is committed in those parts of the bus not easily supervised by the crew. Both these studies have implications for crime prevention which are drawn out in the discussion and it is hoped that they illustrate the value of the approach advocated in the report.

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*October 1975*

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# 1 'Physical' crime prevention: A criminological perspective

Criminological interest in crime prevention has been largely confined to 'social' measures which seek to eliminate or compensate for the deprivations seen as leading to crime; much less interest has been taken in 'physical' preventive measures which aim to make crime more difficult to commit.<sup>1</sup> This is consistent with a tradition of 'liberal reformism' within criminology (Platt, 1974) insofar as 'social' measures may bring about improvements in community and welfare services, while 'physical' measures can all too readily be identified with the unattractive features of high walls, barbed wire and guard dogs. Moreover, the view on which 'physical' prevention appears to rest, that crime is a mechanistic response to objectively powerful situations, seems to diminish the specialist contributions of many of the disciplines that interest themselves in criminal motivation.

Despite this, there is now evidence of an emerging interest among criminologists in physical preventive methods (Jeffery, 1971; Grenough, 1974; Nieburg, 1974). This, however, has centred more on questions of architectural planning and environmental design raised by Jacobs (1961) and Newman (1972) than on the traditional police concern with protective surveillance, adequate securing of property and the 'hardening' of vulnerable targets through the use of technical devices. The purpose of this volume is to suggest that criminologists, by undertaking evaluative studies of crime prevention measures and by developing existing work on the situational determinants of crime, have a useful contribution to make to physical crime prevention of both the traditional and newer varieties. Moreover, increased attention to the relationship between crime and the immediate environment in which it occurs might be valuable for criminology itself in countering what may be seen as the undue stress that has usually been placed on 'internal' predispositions and the interaction of these with social factors in crime. As Gibbons (1971) has argued, there is ample scope for criminologists to consider also the extent to which deviance may be a temporal response to the provocations, attractions, and opportunities of the immediate situation.

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<sup>1</sup> Although the terms 'social' and 'physical' prevention have not been generally used, others have recognised the distinction. Wheeler et al. (1967) distinguish 'technological' prevention from 'efforts to reduce delinquency by creating broad changes in the structure of community life', while Morris and Hawkins (1970) make a distinction between 'tactical' and 'general' prevention.

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### SITUATIONAL INDUCEMENTS TO CRIMINALITY

Although underdeveloped within criminology, a situational view of crime has respectable antecedents in the work of Hartshorne and May, carried out as early as 1928. As part of a Character Education Enquiry, some 11,000 children were given the opportunity to cheat, steal and lie in settings which included their homes, parties and athletic competitions. The results showed that a supposedly stable trait such as honesty was not consistent across situations but was influenced by immediate situational factors such as the teacher in charge of the tests or the amount of supervision given. Those who behaved dishonestly in one situation did not necessarily do so in situations which were even slightly different, and only a very small minority of children behaved honestly all the time.

In more recent criminology, situational theories of crime have been stressed by theorists attempting to explain the widespread nature of youthful deviance and what Wheeler et al. (1967) have called 'the precipitous decline in delinquency and crime rates as adolescents move into adulthood'. Thus, Matza (1964) has argued against deep motivational commitment to deviance by describing 'drifting' into misconduct and episodic delinquency. Briar and Piliavin (1965), similarly, have stressed 'mundane' situational inducements and lack of commitment to conformity, while Yablonsky (1962) and Short and Strodtbeck (1965) have evidenced the pressures to deviance conferred by working class gang membership.

The importance of situational factors in the institutional treatment of delinquents has been underlined in some recent work undertaken by the Home Office Research Unit. Sinclair (1971) showed that whether or not boys absconded or re-offended whilst resident in probation hostels depended more on the attitudes and training of the warden than on factors in the boys' previous history, while Clarke and Martin's (1971) results also pointed to the importance of the immediate environment, rather than the personality or background of boys, in explaining absconding from approved schools. Following on from such findings, and leaning heavily on recent psychological theory (cf. Mischel, 1968) which has stressed the importance of behavioural adaptation to the environment rather than internal predispositions or personality, an 'environmental/learning' theory has been used by Cornish and Clarke (1975) to explain the ineffectiveness of residential treatment. They argue that such improvements in behaviour and attitudes as might be achieved within institutions are not carried over after release because important differences between the institutional and post-institutional settings impede the generalisation of behaviour modified in the former.

The basic emphasis of such an approach is on the stimuli presented by the situation in which action occurs and on the individual's previous experience of similar situations. More precisely, stimulus conditions, including opportunities for action presented by the immediate environment, are seen to provide—in a variety of ways—the inducements for criminality. These are modified by the perceived risks involved in committing a criminal act; the anticipated consequences of doing so; and—in a complex, interrelated way—the individual's

past experience of the stimulus conditions and of the rewards and costs involved.<sup>1</sup> Considerable difficulties attach to such an explanation of crime and it is not clear to what extent it could stand as an alternative to views which have stressed motivational and social factors in aetiology, or to what extent it could merely complement them. If the latter, it remains to be seen how much causal weight attaches to situational variables. For the present, all that is being proposed is that greater prominence might be given in criminological explanation to how the inducements of the situation operate in different instances of criminality, and that physical crime prevention (already premised on a situational approach) might be placed on a sounder footing through more systematic study of situational variables—especially those which mediate opportunities for crime.

### THE OPPORTUNITY FACTOR

The term opportunity has been familiarised in criminology in relation to the anomie thesis (Merton, 1957; Cloward and Ohlin, 1961) that the restricted socio-economic opportunities open to working class youths encourage illegitimate solutions to the problems of acquiring wealth and status. In contrast, there has been little discussion about the relationship between crime and opportunity, either in the sense it has of providing the immediate environmental opportunity for deviance or the inducement for it. Even those theorists mentioned who have stressed the importance of situational rather than motivational factors in explaining deviance, have paid little attention to opportunity specifically as a situational contingency of crime—though again exceptions are to be found in a variety of contexts.

In the first place, the relationship between crime and opportunity has been debated in general terms in relation to the proposition that the social and economic diversity of modern society has increased its criminogenic potential. Morris and Hawkins (1970), for instance, have argued that affluence stretches criminal initiative ('as you expand the bounds of potentiality for economic and social activity, you equally expand the bounds of potentiality for non-conformity, delinquency and crime'), while Radzinowicz (1966) has drawn attention to the way in which with increasing affluence, the greater availability of property will in itself lead to more opportunities for crime ('the sheer frequency with which opportunities present themselves will make some both tempting and easy'). The point has been examined more closely in relation to autocrime, both by Wilkins (1964) and by Gould and his associates (Gould, 1969; Mansfield et al., 1974). Wilkins used figures showing the parallel relationship between levels of theft in connection with vehicles and the number of vehicles registered in this country between 1938 and 1961 to argue that varying levels of autocrime can be explained in terms of the opportunities presented by variations in the number of vehicles on

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<sup>1</sup> Thus, to give what is perhaps a rather oversimplified example, a boy might be prompted to steal a car if it is 3am on a rainy night, there are no buses running, and there is an unlocked vehicle nearby; he may be especially likely to do so if he has successfully stolen a car in similar circumstances before.



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the road. Gould has suggested a more complex situation in which crime rates are affected not only by the supply of 'stealable' goods, but also by demand for them and by public attitudes to their protection. In other contexts, de Alarcon (1973) has suggested that the availability of drugs (as well as the presence of 'socialising' types of drug users) was a crucial factor in an epidemic of heroin and methedrine abuse in one English town, while Smart (1974) has recently looked at a steep reduction in drunkenness offences in this country between 1914-1918 in terms of the licencing restrictions of the period and the limited availability of alcohol. Variations in the opportunities for different kinds of crime have been used as an explanation for differences in their distribution, at a general level, by Walker (1965) in discussing urban/rural differences and, in more detail, by Boggs (1965) and Baldwin and Bottoms (1975) in analysing differences within particular cities. Opportunity has also been used to explain seasonal variations in crime—by Burt (1944) who observed that the higher rate of property offending in winter months is facilitated by the long dark nights, and by Clarke and Martin (1971) who showed that the opportunities to abscond afforded by such conditions explain the fact that nearly three times as many boys absconded in November as in June from the approved school they studied. Finally, in a rather different way again, opportunities for crime have been related to the absence of supervision and security. Wade (1967) has argued that abandoned houses and buildings under construction, for example, provide important opportunities for damage, while Newman (1972) has shown how crime and vandalism on public housing estates can be explained by the opportunities for crime presented by isolated areas not under the eye of tenants and caretakers; in relation to security, Baldwin (1974) has shown how carelessness on the part of victims can help explain the patterns of housebreaking and vehicle theft.

From our point of view, however, such applications of the concept of opportunity in the study of crime have done no more than skim the surface; for the most part opportunity has been acknowledged in passing rather than taken as the main object of empirical scrutiny. The potential value of studying opportunity more directly is illustrated by reference to a study of suicide in Birmingham (Hassell and Trethowan, 1972). During the period 1963-1969, the suicide rate in Birmingham fell by 45 %, nearly double the national figure, from 122 to 67 per million population. The decline was almost entirely due to a dramatic fall in coal-gas deaths from 87 in 1962 to 12 in 1970, following a very substantial reduction in the toxic content of domestic coal-gas. This finding is especially important to us. First, it raises the question of whether there are similarly important environmental factors in relation to particular categories of crime, which once identified, could be successfully manipulated. (The recent memorandum on crime prevention of the Scottish Council on Crime accepts, for instance, that stricter control over the availability of dangerous weapons in Scotland might significantly reduce the incidence of violent crime). Second, the research shows that although suicide is commonly seen as behaviour that is determined by strong internal motivations, a simple change in the opportunity for killing oneself can have a marked effect on

the suicide rate. Finally, it provides a comment on the extent to which blocking the opportunities to behave in a particular way is likely either to prevent the behaviour or change its form. In this case, the fact that violent forms of suicide did not increase, suggests that most of those who would have chosen gas to kill themselves were not willing to use instead a more unpleasant alternative or perhaps one that would more certainly result in death. On the other hand, no doubt, some potential suicides may have tried instead to kill themselves with drugs—another relatively passive method—even if such 'displacement' was not reflected in the suicide rate. This could have been, as Hassell and Trethowan suggest, because of the increasing efficiency of hospital resuscitation services.

#### DISPLACEMENT AND CRIME PREVENTION

Insofar as human nature is inventive and the opportunities for crime unlimited, the possibility that blocking the opportunities for action merely displaces it elsewhere, or changes its form, can be seen as constituting a serious challenge to physical crime prevention. Nevertheless, such evidence on displacement as exists—and it has rarely been subject to empirical test—suggests that impeding action by physical means is likely to discourage at least some less determined individuals.<sup>1</sup> An isolated study by Press (1971), on the effects of increasing police activity in one precinct of New York, showed that intensified enforcement shifted less crime to adjacent areas than it prevented locally. In 'Defensible Space', Newman (1972) suggests that crime prevented on local housing estates by maximising surveillance of the estates' public areas, was not totally displaced to nearby districts. In relation to the study of suicide referred to above, the statistics since 1963 suggest that many of those whose death was prevented by the reduction in gas toxicity did not choose to kill themselves in other ways.

In order to be able to comment further on the extent to which displacement may occur, the argument for it needs to be more precisely formulated and different forms of crime separately examined in relation to displacement. In particular, it seems worth considering whether displacement occurs more often, or perhaps only, *within* particular categories of crime (what might be called 'specific' displacement), or whether it also operates across them ('general' displacement). This distinction can be clarified by considering the example of an increase in burglar alarms in an affluent suburb following extensive publicity given to house-breakings in the area. As a result, some 'specific' displacement of the burglars' activities may occur in that (i) they may change their *modus operandi* to encompass techniques of neutralising electronic alarms, or (ii) they may avoid secured houses and be more likely instead to break into the unprotected ones if these were sufficiently numerous in the locality. Their criminal behaviour might be much less susceptible to 'general' displacement to markedly different types of

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<sup>1</sup> Wheeler et al. (1967) cogently express the reason for this: 'Much of the rest of our lives is governed by a kind of economy of effort, whereby desired activities can become so difficult to complete that the effort is no longer made, and there seems no clear reason that criminal activities should not be governed by analogous principles'.

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offending. They would be unlikely, for example, to start raiding banks (which requires team-work and has much greater risks<sup>^</sup>-and rewards—attached to it), or to start robbing people in the street (which involves personal confrontation with victims—something housebreakers are traditionally thought to avoid). As should be clear, we would question the idea that there is a floating body of people with anti-social tendencies which must be expressed in crime of whatever kind. On the contrary, we believe that criminal behaviour consists of a number of discrete activities which are heavily influenced by particular situational inducements and by the balance of risks and rewards involved. Upsetting this balance through measures which make it more difficult to act is unlikely to displace action to crime which serves different ends and for which different internal and external sanctions might apply. The fact, on the other hand, that 'specific' displacement of behaviour is likely to occur suggests that such an effect should be anticipated in crime prevention practice and the possibility minimised of behaviour being displaced to forms of action which are functionally equivalent and which have similar social and personal significance.

## CLASSIFYING AND MEASURING OPPORTUNITIES FOR CRIME

While this discussion has underlined the power of opportunity in determining behaviour, it has also begun to show the great variety of ways in which it can be conceptualised. First of all, opportunities for crime can be divided into those attaching to people and those relating to the objects involved in crime, and each of these categories, for convenience, can be subdivided further. Thus, opportunities for crime attach to people, firstly, in the sense (as much criminological theory would recognise) that an individual's personal opportunities to commit crime vary according at least to age, sex and general life style (eg housewives will have numerous opportunities to steal from supermarkets), and, secondly, in the sense that people themselves, as victims of crime, will differentially generate opportunities for it.<sup>1</sup> Thirdly, people's opportunities for crime can be affected by the patterns of daily activity that follow from particular forms of social organisation. (Clifford (1974) has argued, for instance, with reference to recent experience in the Phillipines, that conditions of curfew can dramatically cut crime).

Opportunities that attach to the properties of objects involved in crime can be seen in the first place to be related to the *abundance* of goods in circulation or to the supply of objects involved in particular criminal offences. (As more cars come on the road, so opportunities for stealing them will increase; in a society where every household has a gun, more neighbours and spouses will be shot during disputes than in a society where guns are tightly controlled.) Secondly, there are the kinds of environmental opportunities for crime which are closely linked to the *physical security* of the objects involved in a class of offence. (Cars which are locked are difficult to steal, and goods in self-service shops are more

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<sup>1</sup> Recent work by Sparks et al. (in press) suggests that '... the age-specific risk of becoming a victim one or more times a year roughly parallels that of being convicted of a crime: that is, it is highest for adolescents and young adults, declining in the middle and later years of life'.

vulnerable to shoplifting than those in the traditional corner-shop.) Thirdly, there are opportunities for crime which are mediated by levels of *surveillance* and supervision. (Where pram sheds and garages are not easily visible from the dwellings on a housing estate, they are more likely to be vandalised; the less shop assistants attend to customers, the more goods will be stolen.)

Apart from the variety of categories under which opportunities for crime can be classified, an additional conceptual problem is that opportunity, can be seen as having two components, doubly providing the *occasion* for action (the objective, material conditions necessary for an act to be committed), and the *temptation* for it (the conditions subjectively perceived as favourable to action). And these are not discrete since an unlocked car provides both the condition and the inducement for theft. Reconciling the objectively important component of opportunistic situations with the subjectivist claim that, in the last resort, opportunities are only perceived opportunities, is a problem that remains to be tackled (cf. Baldwin and Bottom, 1975). Clearly, there are countless occasions when the very considerable opportunities of the situation are not sufficient to provoke a criminal response and any examination of the concept of opportunity must fully recognise the fact.

In testing the role of opportunity further, most, if not all types of offence could be examined in terms of each of the categories of opportunity defined earlier. For instance, burglary could be looked at in terms of the greater freedom of men to be away from their homes at night, the density of residential properties in rural as against urban areas, the security of these properties, or the extent to which routes of access to them are visible to neighbours and passers-by. The demands of general criminological explanation, however, will differ from those of an approach concentrating specifically on crime prevention. While it may be valuable for criminologists concerned with explaining differences in rates or changes in the levels of offending, to study how opportunities for crime are related to individuals' personal opportunities for crime or the abundance of goods in circulation, the pay-off for crime prevention may be greatest, not from studying such largely intractable phenomena, but from studying the physical security and surveillance aspects of opportunity. Looking at car theft, for instance, in terms of the numbers of cars on the road, or the numbers of persons holding driving licences, may help in discussing temporal trends in autocrime, but will not lead to feasible policies for reducing it. If one looks instead at how the securing of cars affects illegal users (as was done for the study reported in Chapter 2), the results may be of considerably more practical use. To illustrate the point further: in the study of bus vandalism reported in Chapter 3, the opportunity for damage could have been measured by the number of buses on the road, or the types of passenger carried—in addition to, as was the case, the degree to which passengers are supervised by the conductor and driver; choosing to relate vandalism to levels of supervision by the bus crew meant that we were in a better position to make practical suggestions for its reduction.

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### SUMMARY

This introductory discussion provides a framework for the two empirical studies reported next. It has argued that criminologists should supplement their interest in 'social' crime prevention by offering more support to 'physical' prevention through a theoretical development of the subject and the undertaking of more empirical research. It was suggested that criminological explanation should take greater account of how, and under what circumstances, situational variables combine with other relevant factors to produce crime and determine its pattern. From the point of view of physical crime prevention, it was stressed that the availability of opportunities for crime is a situational variable particularly well worth examining, though the difficulties of defining and operationalising opportunity were acknowledged, as well as the need to study whether reducing opportunities prevents or merely displaces crime. In classifying opportunities for crime, it was suggested that those related to lack of surveillance and physical security were most worth analysing in relation to crime prevention; analysis of the opportunities afforded by the abundance of property or by people's patterns of activity might be of greater value in explaining differences or changes in crime rates.

The two studies reported in the following chapters—one concerned with the effectiveness of steering column locks on cars, the other relating vandalism on buses to levels of supervision of passengers by the crew—are intended to illustrate the feasibility of analysing crime in terms of the opportunities for it presented by lack of security and surveillance, the explanatory potential of doing so, and the lessons for crime prevention that can result.

## 2 Steering column locks and car theft

Since January 1971, all new cars imported to and manufactured in this country have been fitted with a steering column lock as standard equipment. These locks, which are automatically brought into operation when the ignition key is removed, were introduced in the face of increasing autocrime in preceding years to make it more difficult for vehicles to be illegally driven away.<sup>1</sup> The potential savings to be offset against the cost of fitting new vehicles with anti-theft equipment (approximately £10 a vehicle at 1971 prices) were considerable. Autocrime involves a great deal of police time and effort (it accounts for no less than 24 % of recorded known indictable crime<sup>2</sup>), and there are losses to insurance companies which are passed on to car owners through the premiums they are required to pay. It also presents considerable hazards to road safety: according to a recent, unpublished paper by the Federal Bureau of Investigation, a stolen vehicle is 200 times more likely to be involved in a car accident than one which is not stolen. This may be because many of those who take cars are young and inexperienced drivers: 76 % of those caught for taking cars in England and Wales in 1973 were under the age of 21, and of these almost half were under the minimum legal driving age of 17.

Although it was hoped that fitting new cars with steering column locks would lead to a reduction in the overall level of vehicle theft and unauthorised taking, this has already been confounded by a remarkable increase in these offences since the beginning of 1971. In the Metropolitan Police District in 1974, for instance, vehicle theft and unauthorised taking was some 80 % higher than in 1970. (Other indictable crime rose by 22 % over the same period). This increase, however, does not necessarily mean that steering column locks are ineffective, since published statistics make no distinction between cars protected by locks and those not;<sup>3</sup> the

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<sup>1</sup> The agreement to fit steering column locks to cars (and vans derived from cars) was a voluntary one negotiated by the Home Office with the Society of Motor Manufacturers and Traders. Though the agreement allowed for alternative anti-theft devices, in practice most cars have been fitted with steering column locks. Thus, for convenience, all devices covered by the 1971 agreement are referred to in this report as steering column locks.

<sup>2</sup> Criminal Statistics: England and Wales, 1973. Autocrime here is unauthorised taking of vehicles, vehicle theft and the theft of property from vehicles. Vehicles in this case comprise commercial vehicles and two-wheelers as well as private cars and vans.

<sup>3</sup> At the same time, given increasing scepticism about the validity and reliability of official criminal statistics, it is worth making the point that statistics relating to cars which are illegally driven away are unusually accurate, at least as far as the reporting of offences is concerned. Because of insurers' requirements that the police be notified when a claim for theft is made, and because of the owner's dependence on the police to help retrieve cars, failure to report missing vehicles is rare (cf. Mansfield et al., 1974).

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overall increase in theft and unauthorised taking may well have been accounted for by offences involving unprotected vehicles.

The study reported below aimed to assess the extent to which the increased security of vehicles manufactured since 1971 has prevented their unauthorised use, and given the continuing increase in theft and unauthorised taking, to examine the question of whether higher levels of protected cars will eventually reduce the overall incidence of these offences. Thus, the study analyses car theft in terms of one of the sources of opportunities for crime identified in Chapter 1 (see pages 6-7), namely lack of physical security. At the same time, it also provided a chance to study another aspect of opportunity through an examination of Wilkins's (1964) hypothesis of a direct relationship between the abundance of vehicles on the road and the frequency of their unauthorised use and, more generally, to comment on the long-standing question of whether preventive measures actually reduce crime or simply displace its pattern.

## THE EFFECTIVENESS OF STEERING COLUMN LOCKS

The method employed in evaluating the effectiveness of steering column locks was to see whether a smaller proportion of 'new' cars were stolen or driven away in 1973 (ie since the introduction of the locks) than in 1969 (before their introduction). In both years 'new' cars were defined as those which, according to their licence numbers were three years old or less<sup>1</sup>. In 1973 all 'new' cars would have steering column locks, whereas in 1969 the great majority would not.

1969 rather than 1970 was taken to represent the 'before' situation since a small number of new cars introduced in 1970 were fitted with anti-theft devices in anticipation of the 1971 measure. Cars on the road in 1969 would have included a number of foreign models some of which had anti-theft devices and, although for strict accuracy some account should have been taken of these, the difficulties of doing so were incommensurate. In any case, the numbers involved would have been small; from information given to us by the Society of Motor Manufacturers relating to new foreign cars registered in this country it can be estimated that in 1969, in the country as a whole, foreign cars accounted for about 5 % of the total cars on the road. And not all of them were fitted with anti-theft devices.

### Sample

The sample was drawn from the Metropolitan Police District's statistical records. These maintain a distinction between theft of vehicles and unauthorised

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<sup>1</sup> The age of a vehicle cannot always be determined from its registration number. For example, second-hand cars imported from abroad are registered by year of import rather than manufacture, and some owners of new cars, especially expensive ones, obtain personalised number plates. These and other exceptions were rare enough to be discounted in the analysis.

Because of the practice since 1967 of changing the suffix to licence numbers on August 1, J registration cars were subdivided into those registered before February 1, 1971 (assumed to be without security protection) and those registered after that date (assumed to be fitted with anti-theft devices)\*.

## STEERING COLUMN LOCKS AND CAR THEFT

taking: a vehicle is considered stolen if it is not recovered within 30 days, otherwise it is recorded as having been taken without authority. The sample comprised, in 1969 and 1973, the last 20 cars recorded as taken without authority and the last 20 (or as many as were available) recorded as stolen in each of the 23 main divisional stations of the MPD. Most of the cars in the sample were taken between August and December; although in 1969 and 1973 the number of cars taken at the very end of the year was rather high, there is no reason to think that for our purposes bias has been introduced by sampling car theft and unauthorised taking mainly from the second half of the year.

### Results

Table 2:1 shows that in 1969 'new' cars represented 20.9% of all cars illegally taken, whereas in 1973 the figure had dropped to 5.1%, a difference we would attribute to the protection afforded by anti-theft devices.<sup>1</sup> Moreover, since in 1973 'new' cars represented a greater proportion of the total number of cars on the road (an estimated 37%) than in 1969 (34%), the difference is a little more accentuated than it appears.

**Table 2:1**  
**'New' cars (ie those 3 years old or less) as a proportion of cars stolen and taken without authority in the Metropolitan Police District in 1969 and 1973.**

	1969			1973		
	<i>Unauthorised taking</i>	<i>Theft</i>	<i>Total</i>	<i>Unauthorised taking</i>	<i>Theft</i>	<i>Total</i>
All cars taken	460	457	917	460	458	918
New cars taken	93	99	192	30	17	47
% new cars	20.2%	21.7%	20.9%	6.5%	3.7%	5.1%

The 47 'new' cars sampled which were stolen or taken without authority in 1973 despite being protected by steering column locks were not all, of course, necessarily moved by tampering with the locks themselves. Although from the data examined it was not possible to tell how many of the 'new' cars were left insecure, it is quite likely that some of the cars would have been left with the keys either in them or readily available. A United States President's Commission report (1967) on crime suggested that 42% of cars stolen had unlocked ignitions, while in this country Baldwin (1974) has shown, similarly, that a disproportionate number of cars left insecure are taken and driven away, or have property stolen from them.

<sup>1</sup> Two other categories of autocrime maintained in MPD statistics are theft of property from a vehicle which is not moved and theft from a vehicle which is moved. Since 1969, theft from vehicles which have been moved has continued to rise along with unauthorised taking and theft, confirming that steering column locks have not improved the overall picture of car theft. At the same time, it appears from some rather limited data we collected that moving a car and taking property from it occurred very infrequently among vehicles fitted with steering column locks, again suggesting that such locks are effective anti-theft devices.



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Thus, if steering column locks are less effective than might be expected from their technical design, some degree of carelessness on the part of car owners is likely to provide part of the explanation.

Although Table %: 1 shows a greater decline in theft than in unauthorised taking, this was not statistically significant ( $\chi^2 = 3.6$ ; 1 df). Steering column locks might have been expected, in fact, to have had a greater impact on unauthorised taking than on theft, given that 'stolen' cars are often regarded as being taken by determined thieves interested in resale, but cars recovered within 30 days as being taken by more opportunistic 'joy-riders', or those in need of transport. It is becoming increasingly difficult, however, to maintain the distinction between theft and unauthorised taking on the basis of a 30-day retrieval period, since more than half the cars recorded as stolen in the MPD are eventually recovered. In easier circumstances, they might have been recovered sooner and thereby have been classified as taken without authority. Moreover, in the present sample, there was no evidence, as one might have expected, that stolen cars were newer than those taken for more casual purposes, since the distribution of cars of various ages between the two categories of theft and unauthorised taking was statistically indistinguishable. This again suggests that the present distinction between the two categories is insufficiently sound to test whether steering column locks have less of a deterrent effect on professional thieves than on more casual car-takers.

The possibility that some factor other than increased vehicle security had intervened since 1969 to reduce the vulnerability of 'new' cars in 1973 was dismissed as remote given that the theft of 'new' commercial vehicles and 'new' motorcycles (neither of which had been covered by any comparable requirement for additional security) had not dropped since 1969. On the contrary, a limited sample of these vehicles was examined, and the proportion of 'new' models stolen was found to have increased from 19 % in 1969 to 22.5 % in 1973.

It seems, then, that steering column locks are efficient in reducing the risk of cars fitted with them being illegally driven away. In fact, extrapolating from our sample, the risk of a 'new' car being stolen or taken without authority in the MPD was about three times less in 1973 as in 1969. The risk to 'old' cars, on the other hand, nearly doubled over the same period and it seems most likely that part of this increase in risk reflects the greater security of 'new' cars—protecting these may well have re-directed some thieves to easier targets.

## FUTURE LEVELS OF THEFT AND UNAUTHORISED TAKING

While, at present, steering column locks are not providing the police with any overall benefit, their effectiveness in preventing the theft and unauthorised taking of cars to which they are fitted suggests that as the proportion of protected cars increases, the numbers of these offences might fall. For various reasons, however, it is difficult to make any precise estimate of when steering column locks might begin to have such an effect. In the first place, like other locks, steering column

## STEERING COLUMN LOCKS AND CAR THEFT

locks become easier to 'break' as they become worn, so that the protection they give may diminish with age. Again, as more cars have locks, it is arguable that the need for the unauthorised user to 'break' them will increase and he may become increasingly ingenious in his attempts. This might be especially applicable to those who make a living from stealing cars (by resale of the vehicle, or its parts) since the value of old, unprotected cars will diminish as the proportion of cars with locks increases. Lastly, (and this is particularly likely if locks maintain their effectiveness, or are supplemented by more elaborate security devices), professional thieves may respond by changing their *modus operandi*!. For instance, they may increasingly acquire cars from locations such as garage forecourts where the keys are likely to be available, or by fraudulent means from car hire firms.

The central difficulty in making reliable predictions about future levels of auto-crime, however, is that our findings show that the number of 'stealable' cars<sup>1</sup> on the road (ie those without steering column locks) does not clearly or directly influence the level of theft and unauthorised taking. Figure 2:1 shows a progressive increase in theft and unauthorised taking since 1961 (notably sharp in 1974) which has not been affected by the reduction in the number of 'stealable' vehicles following the 1971 measures. Although the number of 'stealable' vehicles was even lower in 1974 than in 1961, the volume of car theft and unauthorised taking was 160 % higher at the later date than at the earlier one. Theft and unauthorised taking is apparently not dictated solely by the number of easy opportunities available, and reducing opportunities by fitting an increasing proportion of cars with anti-theft devices might not effect the level of theft in any predictable way.

The increase in theft and unauthorised taking shown in Figure 2:1 also calls into question the hypothesis that autocrime is fairly closely related to the number of vehicles registered, as Wilkins (1964) has argued was the case in England and Wales between 1938 and 1961. If the number of cars *without* steering column locks is taken as an index of opportunity to steal cars, his hypothesis is, as indicated above, clearly untenable; if the total number of cars *registered* is taken as this index, the data still disproves the hypothesis as it stands: for instance, in 1974 there was a 34 % increase over 1973 in the number of thefts and unauthorised takings, but a slight decrease in the total number of cars registered.<sup>2</sup>

A more sophisticated model to explain levels of car theft has been proposed by Gould and his associates (Gould, 1969; Mansfield et al., 1974) which takes into

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<sup>1</sup> 'Stealable' cars are those assumed to be without steering column locks on the grounds that they were first registered before 1971. The number of such vehicles on the road in subsequent years was estimated by subtracting new registrations from the total number registered in each year, allowing for a small amount of 'wastage' of vehicles first registered after January 1971.

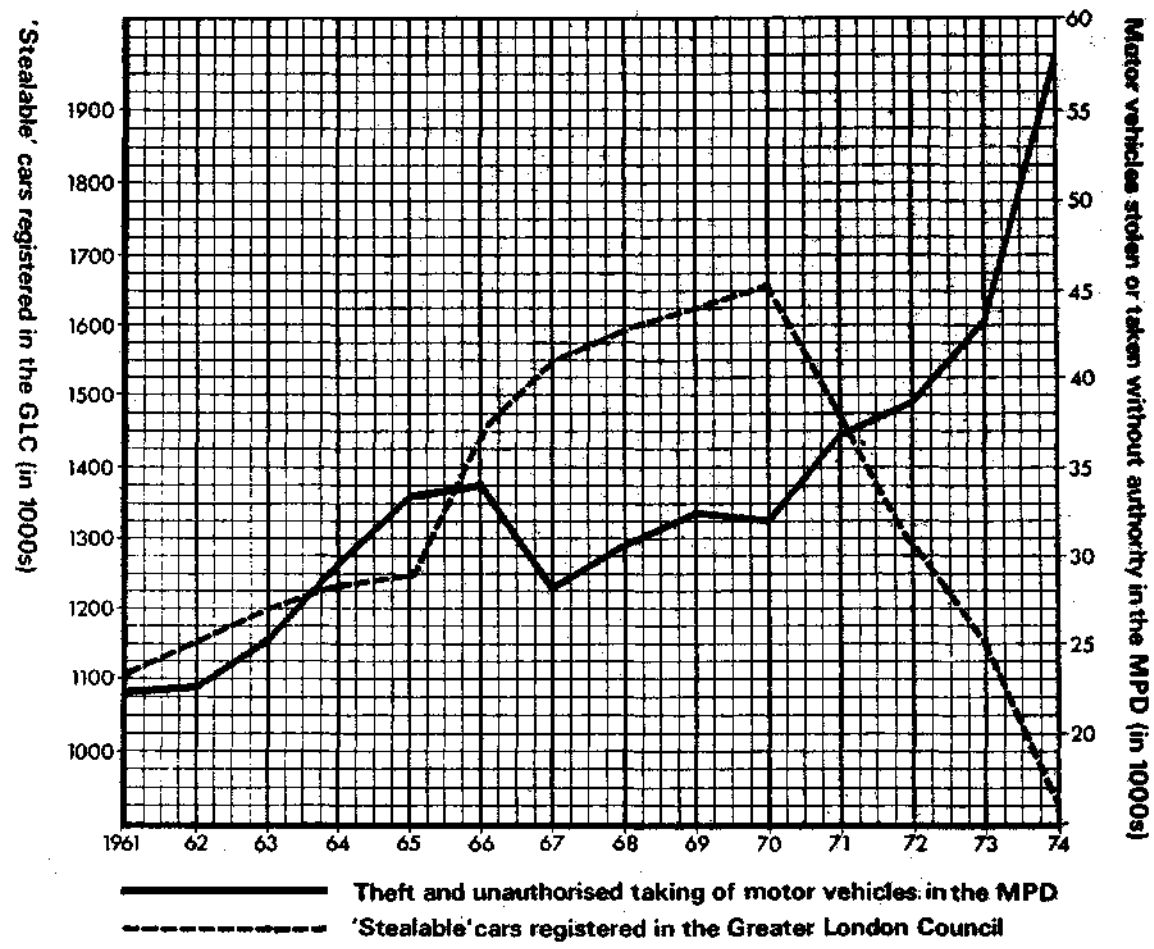
<sup>2</sup> There are other problems with Wilkins's analysis. In relating the level of vehicle registration to the volume of *theft from* motor vehicles, rather than to the *theft of or to the unauthorised taking* of these vehicles, Wilkins appears to have chosen the index of autocrime which supported his proposition best. Moreover, even this rather convenient measure of autocrime has not related well since 1961 (when his analysis finished) to the increase in vehicle registration.

**Figure 2:1**  
**THEFT AND UNAUTHORISED TAKING OF MOTOR VEHICLES IN THE METROPOLITAN POLICE DISTRICT AND NUMBERS OF 'STEALABLE' CARS (ie WITHOUT STEERING COLUMN LOCKS) REGISTERED, 1961-1974.**

*Note (i)* The figures representing 'stealable' cars on the road (estimated from GLC car registration data) relate to cars and vans alone, while the figures for vehicles stolen and taken without authority (from MPD crime statistics) also include lorries and two-wheelers. Since the number of cars and vans as a proportion of all vehicles stolen and taken has steadily increased since at least 1968, the increase in theft and unauthorised taking shown above would have been greater had other vehicles been excluded from the calculations.

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*(ii)* The boundaries of the MPD and the GLC do not quite coincide, though the discrepancy between them is not great. Since the boundaries for the GLC were established in 1964, the figures for cars registered in the area before then are estimated.



## STEERING COLUMN LOCKS AND GAR THEFT

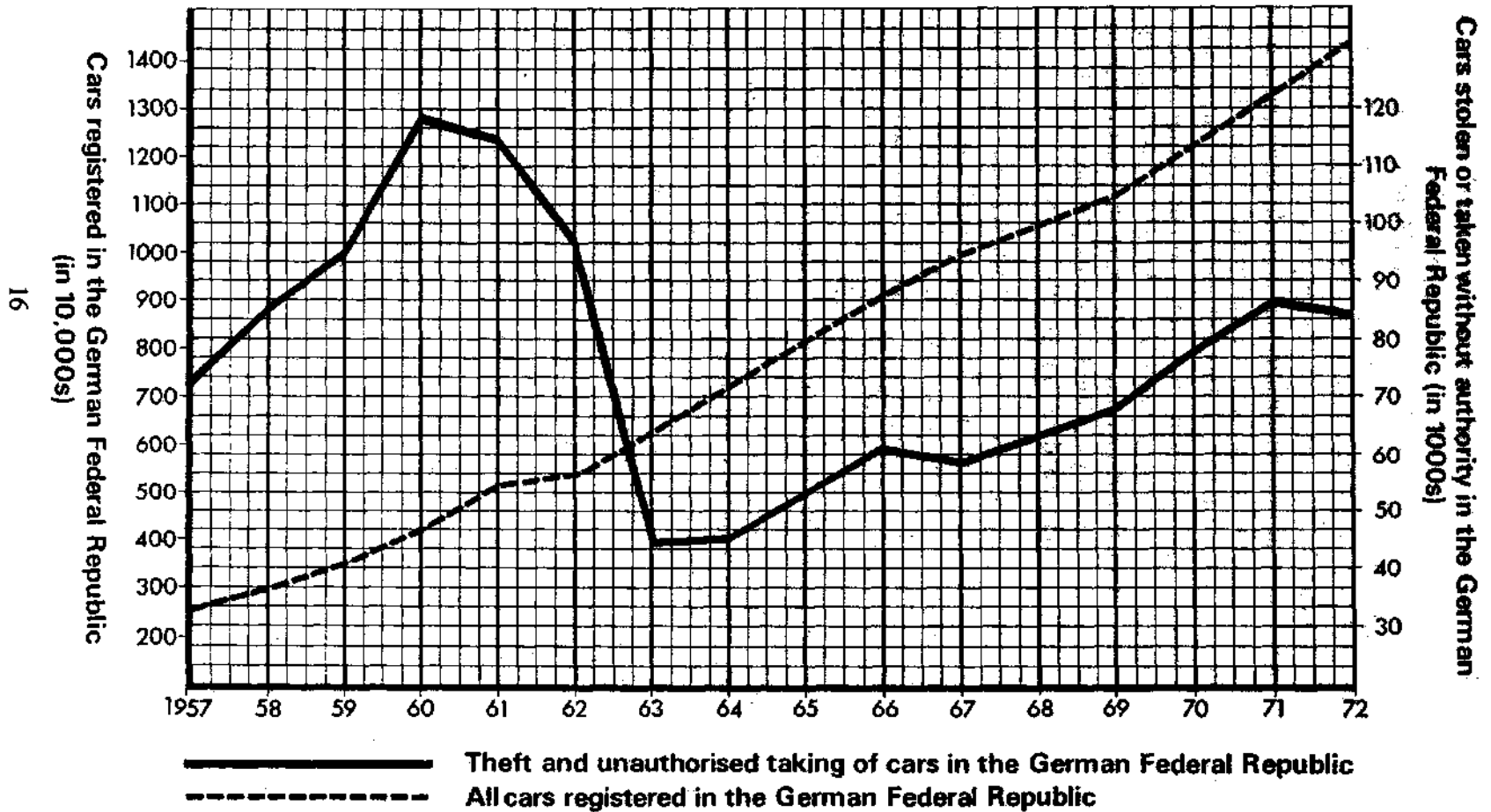
account the changing relationship between the 'supply' of vehicles and the 'demand' for them from various sections of the population. Explaining varying levels of autocrime at different periods and in different countries, they have claimed that when vehicles are in short supply they are the preserve of the professional thief, but when they are abundant they are stolen mainly by amateurs (for instance by those who wish to keep a vehicle for their own use). The model, however, does not adequately accommodate the pattern of auto-crime in this country. For instance, while it is claimed that vehicle thefts peak and begin to decline when there are about 160-200 cars per thousand of population\* there is no sign that vehicle thefts in this country are beginning to decline even though vehicle registrations are now well beyond the level specified. Moreover^ the steep increase in theft and unauthorised taking that has occurred in this country recently cannot be easily explained in terms of supply and demand since the number of vehicles on the road has not greatly altered.

One shortcoming of the predictive models of both Wilkins and Gould would appear to be that no weight is given to varying levels of vehicle security. More precisely, their models may only be tenable when the abundance of similarly insecure vehicles is the only changing factor over time. They fail to accommodate situations in which the overall level of vehicle security is raised, as we explain below has been the case in the German Federal Republic, and those in which a proportion of the cars on the road are made more secure.

The importance of vehicle security has been confirmed by our findings that cars protected with locks are much less likely to be taken or stolen than they would otherwise have been. Other evidence (Bundeskriminalamt, 1973) of its importance is provided by the pattern of autocrime in the German Federal Republic since 1963 when all cars, both new and old, were required to be fitted with anti-theft devices (see Figure 2:2). Increasing the security of the total population of cars in this way produced a very marked decrease (62 %) in car theft during the first complete year (1963) when all cars were protected over the last complete year when no cars were protected (1960). In fact, security protection decreased the risk of a car being stolen or taken without authority by a factor of nearly *four*, and this decrease has endured: the risk of a car being stolen was virtually identical in 1972 as in 1963, taking into account an 86 % increase in registrations. In other words, the German case indicates that the incidence of car theft is related not only to the number of cars on the road (as Wilkins suggests), or the changing demand for them by different types of car thief (as on Gould's argument), but also to the degree to which they are secured.

There are considerable problems, therefore, in accurately predicting future levels of car theft and unauthorised taking in this country. The apparent fact, however, that a substantial proportion of cars taken involve youths who 'joy-ride' or miss the last bus home perhaps suggests that anti-theft devices will eventually reduce the overall level of autocrime. According to MPD statistics for 1973, 85 % of cars stolen or taken without authority were recovered, the great majority of

**Figure 2:2**  
**THEFT AND UNAUTHORISED TAKING OF CARS IN THE GERMAN FEDERAL**  
**REPUBLIC, AND NUMBERS OF CARS REGISTERED, 1957-1972**



## STEERING COLUMN LOCKS AND CAR THEFT

them within 30 days. For the most part, these cars can reasonably be assumed to have been taken by casual unauthorised users who were probably responding to the opportunity presented by the large number of relatively insecure vehicles on the road. One might well expect that the fitting of steering column locks to an increasing proportion of vehicles will eventually be reflected in a lower incidence of 'joy-riding' and 'journey-making' on the part of the less painstaking, more opportunist thief. For eventually the absolute numbers of unprotected cars on the road will fall to figures low enough to alter materially the ease of finding a car for illegitimate use. Thus in the MPD in 1973, 1:32 unprotected cars were stolen or used without authority at a time when cars with steering column locks accounted for about 37% of cars on the road. In the MPD in 1977, protected cars will account for about 68% of cars, and in 1980 for about 81%.\* It is worth noting that at these two levels some 1:20 and 1:13 unprotected cars would have to be stolen or taken without authority if the same number of such vehicles were to be taken as in 1973. On the face of it, either proportion seems untenably high given (apart from anything else) that risks of these magnitudes would hardly be accepted complacently by owners of old cars—or by their insurers.

### DISPLACEMENT

A main finding of the present study is that although steering column locks have substantially reduced the risk of cars fitted with them being illegally driven away, they seem also to have had the effect of redirecting thieves to cars without them. The results are therefore compatible with a 'specific' displacement effect as discussed in Chapter 1. Or, at least, the findings support 'specific' displacement in the current situation when, given the 1973 level of cars with steering column locks (in the MPD about 37%) the absolute number of unprotected cars (some 1.2 million) seemed quite adequate to allow displacement to these: the potential thief or joy-rider would have little difficulty in finding an unprotected car when he wanted one. We have already pointed out, however, some of the difficulties of knowing whether displacement to unprotected targets will as readily occur when the number of these is heavily outweighed by the number of cars protected by anti-theft devices.

As it becomes increasingly difficult to find unprotected cars, the 'specific' displacement that will occur may be of the kind whereby car thieves—or, more precisely, some car thieves—change their methods of operation. It seems likely that those who at the moment steal cars for re-sale will, as well as developing more sophisticated methods of moving secure cars and devoting more effort to the fraudulent acquisition of cars, also displace some of their present activities to related offences such as stealing parts and contents without moving the car and stealing relatively vulnerable commercial vehicles. In contrast, displacement to other

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<sup>1</sup> These estimates assume that the yearly level of new registrations will remain constant at its 1973 level, and that the 'fall-off' in registrations of old cars will conform to present patterns in the GLC (as they appear from GLC car registration data). No attempt has been made to predict the situation beyond 1980.

## CRIME AS OPPORTUNITY

**autocrime is less likely** to occur among those who casually and opportunistically take cars for purposes (for instance, a ride home) which would not be obviously served in other ways.

While this study provides evidence that curtailing opportunities for autocrime might lead to a degree of 'specific' displacement, it says nothing of course about the extent to which reduced opportunities for car theft will 'generally' displace behaviour to other forms of deviance. On the arguments presented in Chapter 1, we ourselves would be hesitant to suggest that, with higher levels of vehicle security, there will be any greater incidence of other crimes whose ends are not congruent with those presently served by autocrime, and for which different internal and external sanctions might apply. Thus, in relation to those casual car users whose activities are unlikely to be 'specifically' displaced to other forms of autocrime, we would argue also that their energies are unlikely to be 'generally' displaced to mugging passers-by for money to get home, hijacking taxis, or assaulting bus conductors.

## GENERAL IMPLICATIONS FOR CRIME PREVENTION

The implications of this study for crime prevention, then, are of some weight. For having shown that steering column locks have, for the time being at least, probably displaced some autocrime to unprotected cars, we have shown how optimistic was the hope that overall levels of car theft might be reduced through a securing of a proportion of those vehicles at risk. A clear lesson of this research is that the police will derive only limited benefit from preventive measures which protect only a proportion of vulnerable property—as indeed has already been argued by Riccio (1974) in relation to autocrime in the United States. If within easy reach there is equally vulnerable and equally attractive property, anti-social behaviour will probably be displaced to this. To derive real benefit the whole class of property must simultaneously be secured—a principle, of course, which has been borne out by the successful German experience of anti-theft devices on cars.<sup>1</sup>

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<sup>1</sup> Another interesting example of a legislative measure which has been applied to a total class of vulnerable property is the requirement brought into operation on 1 June 1973, that all riders of motor-cycles (and similar two-wheelers) wear protective headgear. While the measure was introduced for reasons of road safety, there is evidence that an unintended but valuable consequence of the regulation has been a reduction in the number of two-wheelers stolen and taken without authorisation. The number of two-wheelers so removed in the MPD fell from 5280 in the 12 month period immediately prior to the introduction of the protective headgear regulations to 3997 in the subsequent twelve months (a decrease of 24%). This was particularly noticeable in relation to unauthorised taking, and contrasts with a rise of 35% in the theft and unauthorised taking of other motor vehicles in the same period. To the extent that vehicle theft is opportunist, it is reasonable to think that some potential users (aware of what was a well-published requirement) have been deterred from illegally taking two-wheelers because of their increased visibility if not wearing a crash helmet. It is not unlikely, of course, that some small proportion of the rise in 1973 in the theft and unauthorised taking of other motor vehicles could be accounted for by displaced two-wheeler theft. Indeed, such an effect would be a good illustration of how 'specific' displacement might operate between two categories of similar offences involving property which serves generally similar ends.

## STEERING COLUMN LOCKS AND CAR THEFT

Inevitably, however, a total securing of a class of property will cost more than a partial securing of it; and it is worthwhile trying to assess whether, in Germany for instance, the cumulative cost of fitting all cars on the road with anti-theft devices has been justified in terms of some of the more definable savings made. Indeed, since locks on cars serve no obvious purpose other than increasing car security, their cost-effectiveness as a crime prevention measure is particularly well worth considering.

Between 1961 and 1973, the cost of fitting all cars at risk in the German Federal Republic with anti-theft devices can be estimated at £177m, on the assumption that the cost of equipping each existing car was £15 and each newly-produced car £10. On the further assumption (and it is a very optimistic one) that, of all cars registered, the proportion stolen or taken without authority in each year since 1960 would have stayed at the 1960 level, the loss of some 2.6m cars has been prevented over the 12 year period—apparently by the universal fitting of anti-theft devices. Leaving aside that the protection of many newer vehicles will be of continuing benefit after 1973, the total cost to car-owners of £177m, when averaged over these 2.6m cars, gives a figure of about £70 per theft prevented, ie to prevent the loss of one car, some seven individual car-owners have each had to bear the relatively small expense of £10 to protect their car with an anti-theft device. This cost can be offset against the cumulative savings made from the total number of prevented losses in terms of police time, the costs to insurance companies, the material costs to owners of stolen vehicles, and the costs associated with the road accidents in which stolen vehicles are often involved. While it is difficult to put a figure on these savings (and we acknowledge that for cars retrieved quickly and undamaged, the inconvenience costs might be greater than the material ones) it would seem, on the face of it, that the fitting of steering column locks in Germany has been cost-effective.

Up to the present time, steering column locks have been cost-effective in this country only for the owners of cars to which they have been fitted—a small additional sum on the price of a new car has conferred the benefit on these owners of a substantially reduced chance of their car being stolen. But the fitting of steering column locks to new cars has not been of any great collective benefit since, on our argument, the protection of only a proportion of cars on the road has in all probability meant that car theft has been displaced to continuingly vulnerable (though admittedly less valuable) older vehicles.

At first sight, then, the argument for requiring old cars as well as new ones to be fitted with anti-theft devices might seem a strong one. In fact, even discounting the difficulties of gaining public agreement, the time that would elapse before action could be taken (realistically perhaps three years) might render the measure superfluous. By 1978, an estimated 73 % of cars in the GLC will be protected by anti-theft devices anyway, and as we have said, the owners and insurers of the remaining vehicles may not be prepared to run the enhanced risks of these cars being removed illegally.



## **CRIME AS OPPORTUNITY**

In the meanwhile, the disproportionate increase in theft and unauthorised taking over the past few years requires some explanation, and this will be helped by more accurate information about the purposes for which cars are taken, the immediate inducements which operate, and the ways in which different types of illegal users acquire cars. Nevertheless, it would seem—given the still large proportion of cars recovered intact—that casual offenders are heavily implicated in the recent increase in autocrime. In direct practical terms, then, though we have argued that steering column locks will ultimately prevent much casual taking of vehicles, perhaps the benefits of such locks should be maximised by making it more difficult for drivers to leave keys in the car (through the use of spring-ejection locks and key warning systems), and more difficult for keys to be acquired fraudulently. To the extent, however, that some of the increase in car-taking is in the furtherance of theft of contents, it would be worth trying to improve door locks. In any event, a technical approach to the problem of vehicle security is likely to prove more acceptable than at least the alternative of introducing legal sanctions against drivers who leave their cars insecure.

# 3 Damage on buses: The effects of supervision

On the argument (cf. Clinard and Wade, 1957; Wade, 1967) that vandalism tends to be committed spontaneously rather than after deliberate planning, it would seem a particularly appropriate offence to include in any examination of the rôle of opportunity in crime. Vandalism is particularly likely to be directed at abandoned houses, buildings under construction and closed school buildings in secluded areas (Wade, 1967), all of which present opportunities for damage perhaps largely to the extent that they are left unsupervised. Certainly, experimental research in social psychology has indicated that under conditions of little supervision, the occurrence of various forms of dishonest or irresponsible behaviour increases (Hartshorne and May, 1928; Mischel and Gilligan, 1964; Medinnus, 1966; Aronson and Mettee, 1968) while, in another context, attention has been drawn to how urban street crime can be reduced through intensified police activity (eg Press, 1971). With the exception of Newman's (1972) research on public housing estates in the United States, however, little empirical work has been done relating vandalism specifically to levels of supervision in the community.

The small-scale research project reported below provided a chance to study how opportunities for vandalism on buses might be mediated by the ability of drivers and conductors to supervise passengers—in this way illustrating one of the principles proposed in Chapter 1 of this volume (see page 7), that opportunities for crime are likely to be provided by lack of surveillance. Recognising that supervision is affected by design features of the bus—closer supervision of passengers is possible, for example, on buses with conductors and on the lower deck of a double deck bus (where the conductor would normally be)—the location and extent of damage on four different types of double deck buses were related to the different levels of supervision which the crew were able to provide. It was hoped that the results, by elucidating factors in vandalism over which bus operators might have some control, could provide a sound empirical base for attempts to minimise damage.

## THE STUDY

### Sample

The sample of 99 buses was chosen from the two garages which service the Southern Area of the Central Divisions of Greater Manchester Transport. A 25 % random sample was taken, stratifying for the four main types of double deck bus—one-man operated, dual purpose, front-entrance conventional, and rear-

## CRIME AND OPPORTUNITY

entrance conventional. The numbers of each type of bus making up the sample and their principal characteristics are shown below:

<i>Type</i>	<i>No. in Sample</i>	<i>Conductor</i>	<i>Average age of sample buses</i>	<i>Staircase position</i>	<i>Number of seats</i>	
					<i>Lower</i>	<i>Upper</i>
<b>One-man operated</b>	48	No	3.5yrs	Centre	26-30	45-47
<b>Dual purpose</b>	22	Yes—80% of journeys	6.4yrs	Front	32-33	43
<b>Front-entrance conventional</b>	12	Yes	8.8yrs	Front	33	43
<b>Rear-entrance conventional</b>	17	Yes	16.4yrs	Rear	28	32-37

### Method

Since the bus company kept no individual job records of repair work related to vandalism, damage was directly recorded by the research worker. Four different types of damage were distinguished—holes, tears, scratches and writing—which depending on their size were given a score of between 1 and 3. Damage was recorded for individual seating units, defined as the seat itself and its immediately surrounding area. Although these units varied slightly in size, analysis showed that this was not an important factor in the results. For the main analysis of the data, damage was scored for the seating units in four locations of the bus: the front, middle and rear third (excluding the back seat) and the back seat itself. In comparing damage between these different locations, mean seating unit damage scores were calculated to take account of the fact that the number of units in each location varied between buses.

Damage was recorded over a period of five evenings when the buses were in the garage. No reliability checks were made of the ratings as this was only intended to be a small-scale exploratory study. As the damage was recorded by one observer, however, it was not expected that the assessments would vary greatly between parts of the bus or from one bus to another. In recording damage, no allowance was made for the age of the bus or for when it had last been renovated<sup>1</sup>, though account was taken of these factors in the analysis. Nor was any attempt made at the recording stage to distinguish between accidental and deliberate damage, though writing and many of the larger holes and tears (which would attract larger damage scores) were quite obviously the result of vandalism.

<sup>1</sup> An exception to this was that on the few occasions when parts of seats or complete seats had been replaced they were separately recorded. As a result of such replacements, not all seats on a particular bus would have been at risk for the same amount of time. In order to test whether this affected the comparisons the two types of conventional bus, which had had most of the seat changes, were compared both overall and by different locations without including any seat which had been changed: differences in damage scores found between the bus types were, however, unaffected.

DAMAGE ON BUSES: THE EFFECTS OF SUPERVISION

Although four types of damage were distinguished at the recording stage, they were re-grouped for the purpose of analysis since when considered separately there were too many zero scores to make detailed comparisons between buses possible. In order to arrive at a basis for re-grouping, principal component analyses were performed on the damage scores in the four different locations and overall. As the results were very much the same whatever location was studied, only the factor loadings from the overall analysis were used. Holes, tears, and writing had roughly equal loadings on the first factor while scratches alone loaded highly on the second (see Table 3:1)—the first two factors being the only two with an eigenvalue of 1 or more. This suggested that holes, tears, and writing had much in common, ie they may all have been the result of vandalism, whereas the scratches were of a different order of damage—perhaps caused accidentally by large objects such as baskets or umbrellas. It was therefore decided to sum scores for holes, tears and writing and to omit scratches altogether.

**Table 3:1**  
**Correlation Coefficients and Factor Loadings (all seat positions)**

	<i>Holes</i>	<i>Tears</i>	<i>Writing</i>	<i>Factor 1</i>	<i>Factor 2</i>
<b>Holes</b>	1.00			0.80	-0.11
<b>Tears</b>	0.57	1.00		0.86	0.01
<b>Writing</b>	0.35	0.45	1.00	0.70	-0.34
<b>Scratches</b>	0.13	0.24	0.05	0.34	0.92

RESULTS

Damage on the lower and upper decks

For all four types of bus the seats on the upper deck suffered much more damage than those on the lower deck (see Table 3:2). The difference was least pronounced on rear-entrance conventional buses—mean seat damage on the upper deck being *five times* as great as on the lower deck—and most pronounced on one-man operated buses and on dual purpose buses—where damage on the upper deck was over *twenty times* greater than on the lower deck.

**Table 3:2**  
**Mean seat damage score by deck and type of bus**

	<i>One-man operated (n = 48)</i>	<i>Dual purpose (n = 22)</i>	<i>Conventional with front entrances (n = 12)</i>	<i>Conventional with rear entrances (n = 17)</i>
<b>Lower deck</b>	0.22	0.12	0.23	0.37
<b>Upper deck</b>	5.12	2.47	2.70	1.97

## CRIME AS OPPORTUNITY

Table 3:2 highlights, secondly, the particularly great amount of damage on the upper deck of one-man operated buses: they suffered almost twice as much damage there as any of the other three types of bus ( $p < .001$ ) where the extent of upper deck damage did not vary significantly. Another indication of the severity of damage on one-man operated buses was that some of the seats on twelve of these buses (a quarter of the total) had been replaced by hard wearing plastic seats which are fitted only where vandalism is prevalent. None of the other buses had been fitted with these seats.

The greater vulnerability of seats on the upper deck of all bus types was not unexpected given that the upper deck would be less supervised than the lower deck. On conductor-operated buses the conductor would spend most of his time on the lower deck, leaving the upper deck unattended for long periods. Lack of supervision, of course, could also explain the particular vulnerability of upper deck seats on buses operated without a conductor: drivers would observe the activities of passengers on the upper deck only through the observation mirrors sited at the front of the bus. The fact that the dual purpose buses are more similar to conventional buses than to one-man operated buses in the extent of damage suffered on the upper deck is probably explained by the bus company's estimate that dual purpose buses operate with conductors on about 80% of their journeys.

From Table 3:2 it can be seen, thirdly, that on the lower deck, despite relatively small amounts of damage, there were again differences between bus types. Analysis of variance showed these to be significant ( $p < .05$ ). While one-man operated buses suffered most damage on the upper deck, it was rear-entrance conventional buses which suffered most from damage committed on the lower deck. Although conventional buses are slowly being phased out—the older rear-entrance ones first—the bus company has not adopted a policy of letting the damage to the oldest buses go unrepaired. Indeed, if there had been such a policy, one would have expected such buses to have suffered more damage on the upper deck than was the case.

The probable explanation for this difference in damage on the two decks is that, in addition to the effect of supervision, the effect of the buses' age has also to be taken into account. Separate analyses of damage to buses within each of the four types had not shown any direct relationship between age and extent of damage, but this was probably because the age range was too narrow for each bus type. To have treated all buses together, however, would have confounded the analysis by inclusion of the supervision factor. On the upper deck, the amount of supervision was clearly a more important factor than the age of the bus because the one-man operated buses, despite being at risk for the least time, had suffered most damage and the oldest buses with a conventional rear-entrance had suffered the least. On the lower deck, however, the oldest buses, in particular the rear-entrance conventional ones, had suffered the most damage, some of it possibly caused not by vandalism but by extensive ordinary wear. Nevertheless, super-

vision may still have had a limited effect upon the extent of damage on the lower deck, as the least supervised one-man operated buses had suffered more damage than the older dual purpose ones.

**The location of damage on the upper deck within different bus types**

Analysis of variance of damage scores for the upper deck again revealed that there were significant differences between the bus types in the location of damage ( $p < .001$ ), the greatest differences being between the one-man operated and all the others, for each of the locations.

**Table 3:3**  
**Bus type by location of damage on upper deck—mean seat damage scores**

	<i>One-man operated (n = 48)</i>	<i>Dual purpose (n = 22)</i>	<i>Conventional with front entrances (n = 12)</i>	<i>Conventional with rear entrances (n = 17)</i>
<b>Front</b>	2.55	0.81	1.30	1.68
<b>Centre</b>	3.25	1.27	0.91	1.16
<b>Rear</b>	6.22	2.42	2.83	1.58
<b>Back seat</b>	18.10	11.55	12.96	9.53

It can be seen from Table 3:3 that for all bus types, the back seat had suffered far more damage than any other location and, with the exception of the rear-entrance conventional buses, the damage generally got worse towards the back of the bus. These results were not unexpected given the particular perspectives of this study: the back seat would be the only seat where the activities of the occupants would be unobserved by other passengers, and the rear of the bus would also be less visible to most passengers than the front.

On the rear-entrance conventional buses, although the back seat was still most severely damaged, there was a greater amount of damage at the front of the bus than in the centre or rear. It was thought that these findings might partially be accounted for by a 'displacement' of damage (see Chapter 1, pages 5-6) resulting from the position of the staircase—rear-entrance conventional buses being the only buses with their staircases at the back. People sitting near to the staircase might be more reluctant to commit acts of vandalism when there would be a danger of being surprised by another passenger or the conductor.<sup>1</sup> At the same time, the relatively small amount of damage on the back seat of rear-entrance conventional buses and, indeed, the relatively small amount of damage on the

<sup>1</sup> In fact, when the two types of conventional bus were separately examined, no significant difference was recorded in the location of damage, although the tendency for rear-entrance buses to suffer more damage at the front and less at the back was consistently found for each of the individual damage types which make up the aggregate score.

## CRIME AS OPPORTUNITY

upper deck in general (see Table 3:2) suggests that the position of the staircase on these buses, as well as displacing some vandalism, might also have prevented some.

On the one-man operated and dual purpose buses with, respectively, staircases situated at the centre and at the front, it is not possible to estimate whether the location of damage has similarly been affected by staircase position because any 'displacement' would be in the direction of the back of the bus, which was likely to be most severely damaged wherever the staircase was positioned

## DISCUSSION

Two main findings, then, emerge from this study: first damage was greatest on buses without a conductor, even though these were the newest of the buses studied;<sup>1</sup> second, on all buses, including those with conductors, damage was greatest in areas of low supervision (especially the upper deck and the back seat). Neither of these findings may be surprising, but the magnitude of the differences in the damage recorded should not be overlooked. For example, on one-man operated and dual purpose buses there was about 20 times as much damage on the upper as on the lower deck. The finding of a relationship between the supervision of passengers and the amounts of damage on buses is broadly in agreement with Newman's (1972) finding reported in 'Defensible Space' that the least observed parts of housing estates, such as lifts and staircases, suffered the highest rates of crime.

Although a relationship was found in this study between lack of supervision and damage, it is conceivable that the location of damage *within* buses, but not the extent of damage *between* different types, may be affected by where different people choose to sit. With this in mind a small observational study involving 47 bus journeys was conducted to find out where people of different age and sex tend to sit. On any one journey only passengers on one deck of the bus were studied. For practical reasons the study took place during Monday to Friday of one week, and only on one-man operated buses, although it was accepted that on other types of bus and at weekends the age and sex of passengers might be different. The results showed that slightly more people travel on the lower deck, and that about 60 % of them were women and girls. On the upper deck about 70% of the passengers were male and 21 % were estimated, again without checking reliability, to be under 16; on the lower deck 14% were estimated to be of that age. A separate analysis of where people choose to sit on the upper deck showed that children (especially boys) are more likely to be found at the back of the bus, especially on the back seat (48 % of the back seat passengers were under 16), while the older passengers who travel on the upper deck more often sit at the front (60% of passengers over 16 sat at the front).

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<sup>1</sup> Although conductor operated buses tended to serve certain routes, there was no reason to think that these would attract more or less vandals than the routes served by one-man operated buses.

## DAMAGE ON BUSES: THE EFFECTS OF SUPERVISION

These results, then, show that those people who are considered least likely to engage in acts of vandalism (older passengers, women and girls) have a tendency to sit in the areas least damaged (the lower deck and the front of the upper). Nevertheless, these differences between groups of people in where they choose to sit are not nearly as large as the differences in the amount of damage to the various seat locations. Moreover, it should not be overlooked that very substantial differences were found between bus types in amount of damage and that these were most likely to have resulted from differential supervision. It would seem likely, therefore, that differences in amount of damage between the various parts of the bus are also largely due to supervision factors, with perhaps a smaller part of the differences attributable to different kinds of passengers choosing particular seats. Even more likely is that these two factors are to some extent interdependent—potential vandals probably choose unsupervised areas even if they do not intend to cause damage. Vandalism itself might still be a spontaneous reaction to the opportunities that the situation presents.

Further knowledge about this process could be achieved in several ways. A study of where people sat on the upper deck of the two types of conventional bus might show whether those types of people who sat at the back of the front entrance buses were more likely to be found at the front of the rear entrance buses, given the effects that the staircase would have on the levels of supervision. Failing this, interviews with bus passengers might reveal reasons for seat choices.

To find out more about the circumstances of acts of vandalism it would be necessary to undertake an observational study (with the difficulty that the observation might inhibit the behaviour being studied). It would be valuable to know when vandalism is most likely to occur and which sort of bus vandalism is an individual pursuit and which a group one, since it has been argued that groups are likely to take greater risks than individuals (Rettig, 1966; Wallach, Kogan and Bern, 1965). It might be expected, for example, that vandalism occurring in the more supervised areas was more likely to be committed when there was a group of two or three children together.

Thus, while the findings of the present study may not greatly enhance our understanding of, say, the motivational factors involved in vandalism, they certainly point to powerful situational determinants of the behaviour and, moreover, they have important implications for its prevention. The findings suggest that, in considering the design and manning of buses, bus companies should take into account the possible effects of their policies on the prevention of vandalism. Quite clearly, though, bus companies have other factors than vandalism to consider, in particular staff recruitment and wages. Given the policy of operating buses with a minimum of staff, it would seem that the only way to reduce vandalism in the short term is to reduce the opportunity for offences to be committed in ways other than providing conductor supervision. Greater Manchester Transport is already trying to do this by colouring flat surfaces so that they do not show felt-tip writing, by using non-flammable materials wherever possible,



## CRIME AS OPPORTUNITY

and by ensuring that fixtures and fittings cannot easily be removed. The company is also experimenting with more elaborate devices to minimise damage, such as closed circuit television on the upper deck and warning devices fitted to seats. All of this adds to the cost of vandalism (already estimated by GMT to be about £150,000 a year) and it may be that one-man operated buses will only prove less expensive to operate if most of the damage is left unrepaired or if more hard wearing seats are fitted, especially on the upper deck.

## SUMMARY

This chapter has been concerned with the effect of supervision by drivers and conductors on the location and extent of damage on four different types of bus operating in Manchester. From the particularly large amount of damage to seats on the upper deck of one-man operated buses, it appeared that, for this deck at least, the absence of conductor supervision was the most important factor affecting the amount of damage sustained. At the same time, on all types of bus, including those with conductor supervision, the degree to which passengers were supervised by the bus crew seemed to relate clearly to the extent and location of damage, in that areas of low supervision (such as the upper deck and the back seats) were damaged most.

There was some evidence that the position of the staircase can lead to a displacement of damage, probably because vandals seated near to the stairs can be surprised by anyone climbing them. This displacement can be advantageous overall if it is in a direction away from the back seat where most vandalism occurs; this was illustrated by the lower rate of damage on the upper deck of conventional rear-entrance buses compared with the front entrance ones.

Although the least supervised areas of the bus were the most damaged, it was also found that younger male passengers—perhaps the ones who would more often commit damage—were somewhat more likely than others to sit in these places. While this finding suggests that any explanation of the different levels of damage *within* different parts of the bus needs to account for the interrelationship between seat choice and supervision factors, it does not, of course, undermine the importance of the differences found in damage committed *between* bus types. Thus the results indicate that situational factors, such as supervision, can play an important part in determining the extent of damage on buses, and indeed, that to reduce bus vandalism, these factors must be taken into account.

## 4 Concluding remarks

This report has suggested that it would be valuable if criminologists were to take a greater interest in techniques which seek to reduce crime through manipulation of the physical rather than social environment. Such techniques encompass the preventive work of the police and some of the architectural and design principles which in some isolated contexts have recently been discussed in criminology. They can be seen to rest on the premise that the situational contexts in which different types of crime are committed need to be separately analysed, and that prevention should be based on specifically-directed measures which, by making crime more difficult to commit, discourage the opportunist offender and deter the professional by increasing his chances of being apprehended. Attention was drawn in particular to the relevance for practice of considering the role of opportunity as one of the situational factors in offending.

The studies reported in Chapters 2 and 3 have shown that of the various opportunities for crime afforded by the environment, at least those presented by the lack of physical security or surveillance can be profitably examined in relation to crime prevention practice: Chapter 2 showed that the routine fitting in this country since 1971 of steering column locks to new cars has been effective in substantially reducing the risk to cars so fitted of being stolen or driven away illegally; Chapter 3 showed that parts of buses not easily supervised by the crew were very much more likely to be vandalised than areas which were visible to them.

As well as their more immediate value, the results of both studies also bear on some general points—in the first place, the question of displacement. Both studies provided some evidence compatible with the sort of 'specific' displacement of crime which it was suggested in Chapter 1 was likely to occur. Thus vandalism on the upper deck of buses was displaced to less visible areas depending on the position of the staircase, while the effect of protecting some cars with steering column locks has been to increase the risk to other cars. Indeed, the relevance for crime prevention of anticipating 'specific' displacement was underlined by reference to the position in the German Federal Republic where a dramatic reduction in levels of theft and unauthorised taking was achieved by requiring *all* cars to be fitted with steering column locks at more or less the same time. In other words, the German experience has underlined the need to consider carefully whether, and in what circumstances, partial securing of a class of property can be considered worthwhile.

Secondly, the steering lock study in particular has demonstrated the scope for

## CONCLUDING REMARKS

evaluating current prevention practices which, despite an impressive growth in commercial security services and the recent expansion of crime prevention as a specialised police function,<sup>1</sup> have largely escaped examination. As Wheeler et al. (1967) have argued, one attraction of physical crime prevention is that it may prove considerably cheaper than attempts to alter the attitudes and abilities of potential offenders. Physical prevention methods (which are designed only to reduce crime) should certainly prove easier to analyse in relation to costs than the more diffuse and multi-purpose practices of social prevention. An admittedly crude attempt at an analysis of this kind was made in the present report where it was argued that the use of steering column locks in Germany has been apparently cost-effective. In the vandalism study, it was suggested that bus companies, in attempting to reduce vandalism, would have to weigh the costs of reverting to conductor-operated buses against the costs of using more hard-wearing materials.

Finally, it is hoped that this report has begun to illustrate that physical prevention is not simply a matter of intensive policing and crude security, but that it can, in imaginative and unobtrusive ways, utilise technological and architectural expertise to protect vulnerable property from theft and vandalism, curtail the means of committing crime (for instance, by restricting the availability of dangerous weapons), and take advantage of the natural supervision of the environment by ordinary individuals. Hopefully, it has illustrated too that if physical prevention implies a different form of 'social engineering' from that of social prevention, it does not necessarily involve a greater degree of behavioural control. These are small beginnings, however, and for the future there is undoubtedly scope for undertaking further studies related to the simple classification of opportunities presented earlier in the report, as well as scope for refining it. There is also a need to test the notion of 'general' displacement (ie the displacement of one type of criminal activity to disparate forms of crime), though this may prove to be as elusive a phenomenon as that of general deterrence. Thereafter perhaps, the most pressing need will be for research which will allow the importance of opportunity relative to other factors in criminal behaviour, to be more precisely determined. Only then will it be clear whether opportunity merits as central a place in criminological explanation as it is given in the title of this report.

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<sup>1</sup> Through the establishment in the 1950s of posts of crime prevention officers and the setting up in 1963 of a training centre at Stafford. Crime prevention officers number about 500 at present and are attached to police divisions throughout the country. An important part of their work is preparing security surveys for firms and retailers, while they are also responsible for giving general security advice to the public and for bringing attention to local crime risks. Although security consultancy is their chief manifest role, they are seen as having a latent function in deterring crime through advertising the presence of the police.

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