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Residential Burglary: the limits of prevention

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Foreword

The Home Office has been giving some attention to the study of specific offences, of which burglary is an example. As part of this programme, some research (published earlier this year) has been supported at the Centre for Criminological Research at the University of Oxford and a detailed analysis of burglary in schools - to appear as a separate paper - has been carried out by the Research and Planning Unit. All these studies, including that now reported in the present volume, point to the need for careful local analysis of the problem as a basis for preventive action.

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1 Introduction

Residential burglary is generally regarded as a particularly serious crime both because of the financial and material losses to victims and because of the psychological upset which may follow a break-in (Maguire, 1982). It is also a fairly common crime and accounts for a substantial part of the load on the police, the courts and the prison system. In 1980, about 295,000 burglaries to residential property were recorded by the police in England and Wales and these accounted for some 11% of what in official statistics are now called 'serious offences recorded by the police' *(Criminal* Statistics, 1980). Only 29% of these residential burglaries were 'cleared up' compared with a clear-up rate of 41% for all serious offences. Yet, in 1980, burglars receiving prison sentences for offences against residential and non-residential properties still accounted for nearly half of all receptions into prison of males under 21 and nearly a quarter of those over 21 *(Prison* Statistics, 1980).

On the basis of offences recorded by the police in 1980 and the numbers of households recorded in the 1971 census, a rough estimate of the average risk of burglary to households in England and Wales was 1 in 55. Risk figures however are higher when account is taken of offences not reported to the police. According to recent evidence from the General Household Survey (see *Criminal* Statistics, 1980) these represent some 40% of all residential burglaries which occur. On the basis of both reported and unreported crimes, then, the average risk of burglary to households in 1980 may have been closer to 1 in 35 than 1 in 55.

Research on burglary

Until recently, most of the information available in this country on residential burglary came from police data, but this has now been considerably added to by a number of research studies specifically concerned with burglary (Walsh, 1980; Maguire, 1982; Bennett and Wright, 1981) as well as by some other studies set in broader contexts (eg. Baldwin and Bottoms, 1976; Tuck and Southgate, 1981). Maguire's study which was carried out with Bennett at the Centre for Criminological Research, University of Oxford, has provided a particularly full picture of residential burglary, based on police records of offences in the Thames Valley area and interviews with victims and known burglars.

There has also been considerable research interest in burglary abroad most notably in North America. This is reflected in the descriptive studies of Scarr

(1973) and Reppetto (1974) as well as in the more policy-oriented studies of White (1975), Pope (1977) and Waller and Okihiro (1978). National 'victim' surveys conducted in the United States (eg. Cohen and Cantor, 1981) and Holland (Van Dijk and Steinmetz, 1980) have also provided useful data on burglary.

As far as residential burglary in this country is concerned (though the pattern abroad is not dissimilar) the picture that emerges is, very briefly, that a typical burglary is most likely to occur during daytime hours and when a house has been left unoccupied (see Appendix A for some details). The victim is unlikely to see the burglar (whether or not the house is occupied) and, despite the popular image, there is unlikely to be any vandalism or damage to property apart from the force used to effect entry. Although between a quarter and a third of all entries are made through insecure doors or windows, in most cases some force is used, usually to a window at the back of the house. The actual financial losses to victims are often relatively small. Some 60% of offences known to the police in 1980 involved stolen goods valued at less than £100 (this includes some 20% of all offences where nothing at all was stolen). At the same time, as Maguire (1982) has pointed out, victims frequently suffer quite severe psychological effects.

Tackling residential burglary

Burglary poses particular problems for traditional methods of crime control. With regard to punishment, for instance, the pessimistic conclusion of a substantial body of work on the effect of sentencing as a means of reforming criminals (see Brody, 1976, for a review) would appear to apply with particular force to burglars, among whom rates of recidivism are particularly high. As is clear from Maguire's (1982) results and those emerging from Bennett and Wright's work, burglars' assessment of the pay-off from burglary appears unlikely to be altered by punishment in court, levels of which are already comparatively high: the risk of getting caught is considered tolerable because of the large potential earnings to be made, and burglars in any case seem to believe that if they go about their job 'sensibly' they can and will avoid apprehension.

The police too face considerable difficulties in reducing residential burglary through normal policing methods (cf. Clarke and Hough, 1980; Heal and Morris, 1981). Usually, a burglary will not be reported until some hours after its commission by which time the police are faced with the problem of a 'cold trail'. In most cases the burglar will not have been seen so there can be no hope of identification and, since even the most unsophisticated burglar will probably wear gloves, there are usually no fingerprints or other clues at the scene of the crime that might have aided detection. Often the only circumstances in which a burglary can be successfully cleared up is when an offender is caught red-handed for one offence, burglary or otherwise, and admits to a series of offences committed previously. The chances of a

residential burglar being caught red-handed are, however, low because of the private nature of the locations in which the offence occurs.

In the light of the problems which residential burglary poses for traditional methods of control, other preventive approaches have been given attention. Police burglary squads have been mounted for instance, while in North America in particular, community-based projects are in hand. Some of these other approaches are discussed later in the report. However, the most clearly developed preventive policy in the field of residential burglary - and one that forms a main focus of the study reported here - is so-called 'target hardening'. This approach attempts to persuade householders to make their homes more secure by taking the elementary precautions of closing windows and locking doors and of fitting and using efficient security devices. It is actively supported by both the Home Office and the police, the underlying rationale being that the high rates of residential burglary currently being experienced are a result of a casual approach to security on the part of individual householders. Advice on security is provided by police crime prevention officers (there are some 500 full-time officers in the 43 police forces in England and Wales) who offer security surveys to householders and try to promote careful security behaviour through talks, handouts and local publicity campaigns. Other publicity is sponsored by the Home Office, a large part of whose crime prevention publicity budget is directed towards residential burglary.

2 Aims and methods

The study described in this report was designed to consider issues of relevance to target hardening policies aimed at reducing residential burglary. First, attention was directed to prevailing levels of security of houses generally to establish, for instance, what the need was for improved security in terms of additional hardware and what proportion of houses were left unoccupied with windows open and doors unlocked. Some consideration was also given to the willingness of householders to improve their security protection. Secondly, the characteristics of a set of victim households were studied, so that these could be examined in conjunction with the characteristics of households generally to see if any special features of burgled houses could be discerned. Particular attention was paid to four factors already thought to be important in determining the vulnerability of particular households to burglary. These were the extent to which a house is left insecure.(security), the *reward* value of a house as a burglar is likely to view it, levels of *occupancy* (the degree to which a house is left empty,) and the characteristics of the site and location of the house (defined below as *environmental risk).* The intention was to examine if any inferences could be drawn as to the effect of each of these factors on the risks of burglary and if there were any implications for the policy of target hardening.

No direct attempt was made in the study to determine whether improved security was effective in reducing the chances of individual households being burgled. Instead, the emphasis was placed on the possibilities of reducing overall levels of burglary through target-hardening policies, although the results shed some light on the likely benefits of security to individuals. To have dealt effectively with the importance of security to individual householders, a research design would have been required which either allowed monitoring of burglary rates of a set of houses before and after a change in security protection, or alternatively, matching burgled houses in as many relevant respects as possible with houses in the immediate vicinity which had not been burgled. Neither of these methods was adopted in this study primarily because a principal aim of the study was to sample among as representative a group of householders as possible to estimate normal' levels of security.

The context of the study

The study was carried out in the Kent police force area where a number of

different types of burglary were thought to take place in the area. Burglaries were believed by the police to be committed by both local offenders and by offenders travelling from London - a feature which is shared by many forces on the fringe of metropolitan areas. Kent also contains both rural and urban areas, reflecting the different problems of prevention which such contrasting localities can present. The fieldwork was confined to four adjacent sub-divisions within the police force area (Maidstone, Tonbridge, Malling and Sevenoaks), which were considered to reflect best the main types of burglary in the area. Some 4,948 burglaries in private dwellings were recorded by the police in Kent in 1979; the four sub-divisions studied included 920 of these offences. The average risk of burglary in that year in the four sub-divisions was 1 in 99, varying from 1 in 88 in Maidstone to 1 in 129 in West Malling. For the whole of England and Wales in the same year (1979), the average risk of burglary was 1 in 65, somewhat lower than the 1980 figures mentioned earlier.

In no sense can the study area claim to be representative of the country as a whole. It is, however, typical of many other 'stockbroker' or commuter areas where a large number of burglaries occur and, overall, the patterns of burglary which emerged from the study were not dissimilar from the patterns of burglary which have emerged from other studies (see Appendix A). However, some unusual features were evident. Contrary to some other evidence (eg. Maguire, 1982; Baldwin and Bottoms, 1976; Tuck and Southgate, 1981) burglaries in the study area were, for example, concentrated in the rural rather than the urban areas and amongst owner-occupied in preference to local authority housing. Also the value of goods stolen in burglaries in the Kent study area appeared to be high in comparison with Maguire's results from the Thames Valley and the general picture of offences reported to the police in 1979 (Criminal Statistics, 1979). Taken together these features suggest some bias in the data towards more lucrative, professional burglaries.

The design of the study

For the first stage of the research which was concerned with general security practices, a random sample of all households living in the study area was taken. (Details about sampling procedures are contained in Appendix B.) This group of 491 households - referred to in the report as the *general household sample* - represented roughly a 1/2% sample of all households in the study area, or of all 'potential targets' of burglary. Some 6% of these households had been burgled whilst living in their present home but none of these offences occurred during the period in which the study was conducted.

For the second stage of the research, the general household sample was compared with a group of households living in the study area who had all been recent victims of burglary. The most practical way of deriving such a victim sample was to use police records of reported offences. In this way,

some 434 households in the study area who were burgled within a period of eight and a half months in 1979, were identified and contacted. These represented some 78% of all burglary victims who reported offences to the police in that period, attempts to interview the remainder being unsuccessful. By using these police records, victims of burglary who chose not to report the offence are automatically excluded (the data include no offences disclosed through the 'Taken into Consideration' procedure) and the results presented in this report are therefore limited to reported offences.

For each of the households in the two samples, information was collected from 'site surveys' (to measure environmental risk), from interviews (to measure occupancy and security) and following Baldwin and Bottoms (1976), from valuation lists (to measure reward). Although this last measure of rateable value may appear a rather rough indicator of the potential gains a house might offer a burglar, there is evidence in the Kent study area at least, that burglaries to high rateable value houses tended to result in the greatest financial losses.

The interviews

The interviews were designed primarily to determine the security of each house. Information on security was collected under three main headings. First, there were several questions designed to establish how diligent householders were about locking doors and windows. Householders were asked, for example, to recall the precautions they took on leaving their house empty on the most recent occasions they could remember for particular times of day. By asking about a specific occasion rather than about general security behaviour it was hoped that the information obtained would be more accurate. Secondly, each group was asked in detail about any security devices that they might have installed (eg. burglar alarms, special door and window locks etc.) and about whether they used these items when leaving the house unoccupied. Victims were asked about their use of security devices on the occasion that they were burgled. A third set of questions concerned respondents' awareness of the police crime prevention service and their intentions about improving the security of their home.

Questions relating to occupancy were also included in the interviews to establish the frequency with which households left their homes unoccupied. Respondents were questioned about how often they had left the house empty during the daytime and evening periods in the seven days preceeding the interview and how often they had left it unoccupied overnight during the last year. In addition, information about occupancy at the times the interviewers called at each household was collected. The initial call was always made during the daytime period and when no contact was made, the first call-back was made in the other half of the day from that in which the initial call had been made (ie. if the initial call had been made in the morning then the first

call-back was made in the afternoon or *vice-versa).* Where necessary, a second call-back was made in the evening.

The interviews with victim households were carried out by the authors. Interviews with the general household sample were carried out by a local market research firm over the same eight and a half month period in which interviews with victims were conducted. The two sets of interviews were conducted at the same time as it was thought possible that security practices might vary with the time of year and the clemency of the weather.

Site surveys

A separate data collection excercise was carried out by the authors for all houses in the two samples to obtain information relating to the site and location of houses. These site surveys included a number of specific measures concentrating on two main concepts of access and surveillance. Relating to access, measures were taken of: the ease of getting on to the property, surrounding land use, the degree of access from the front to the back of the house, the type of road in which the house stood, and proximity to the nearest major road. Relating to surveillance, the following were considered: proximity of the house to other houses, the opportunities for surveillance from these, the visibility of the house from public areas, its distance from the road, and road type.

Different measures of this type were appropriate for flats and for houses. However, the numbers of flats included in the two samples (28 in the victim sample and 33 in the general household sample) were too small to allow separate analysis. Flats have therefore been excluded from all analyses reported here which are based on a general household sample of 458 households and a victim sample of 413 households.

3 Levels of security

In line with other evidence, an analysis of burglary incidents recorded by the police in the Kent study area (see Appendix A) indicated that most burglaries take place when a house is unoccupied (80% in Kent), often during the day (at least 38% of burglaries), and through an insecure door or window (22%). At its lowest level, then, sensible security should simply include closing windows and locking doors, particularly when the house is left empty. Answers from the general household sample to questions about this basic security behaviour, however, indicated that careless behaviour was common, despite expectations that some householders would be reluctant to admit to lax behaviour whatever their actual habits. Thus, although only 1 % of the respondents said that they had left a door or window insecure when leaving the house empty overnight, 19% said that they had done so on the last occasion of leaving the house unoccupied in the evening. And when the risk of burglary was highest - in the daytime - security seemed to be poorest: 22% of the respondents admitted that on the last occasion they had left the house empty during the day they had left at least one door or window open.

The general household sample were also asked about the types of security devices they had fitted to doors, windows and french windows. It was not thought appropriate for the interviewer to inspect each door and window and the data collected therefore provide information about reported rather than actual security hardware. This may again present an unrealistically favourable picture. However, as Table 3.1 below shows, even accounting for possible exaggeration, few householders appear to have installed sophisticated

Table 3.1

Individual security devices installed by the general household sample (n=458).

Security Device	*Households*	
	Number	*%*
Mortice deadlock/double lock		
front door	55	12
back door	250	54
any other door	28	6
Special locks on french windows	45	10
Window locks on only some windows	66	14
Window locks on all windows	11	2
Burglar alarm	12	3

security devices. Only back-doors seemed to be frequently fitted with strong locks.

Perhaps more important than the number of individual security devices is the degree to which such devices have been installed in a comprehensive manner. There is no reason to think that partial security will be any more effective in preventing residential burglary than no security at all. Securing all doors into the house with mortice deadlocks may for example provide no protection against burglary if a window is left open or protected by nothing more than a simple catch. For each house in the sample a measure of the overall security was therefore made. This ranged from houses with all entry points protected either by an alarm and/or mortice deadlocks and window locks as recommended by crime prevention officers (ie. 'good' security) to houses with no mortice deadlocks or window locks Cpoor' security).

Table 3.2 shows that overall levels of security were generally low with as many as 28% of the sample having no mortice deadlocks or window locks fitted. Only 7% of the sample had installed security to the standard recommended by crime prevention officers. Moreover, security hardware is no better than the door or window to which it is fitted. Although assessing the strength of doors and window frames was too complicated a procedure to attempt, it can be noted that 70% of the sample had some glass in both front and back doors and only 4% had both front and back doors which were made of solid wood.

Table 3.2

Overall security levels among the general household sample (n=458).

Security Level	*Households*	
	Number	*%*
Good security		
burglar alarm	12	3
mortice deadlock/doublelock on all doors and window locks on all windows	7	2
mortice deadlock/doublelock on all doors and window locks on all downstairs windows	10	2
Partial security		
some doors without mortice deadlock/doublelock and/or some downstairs windows without window locks.	301	66
Poor security		
no mortice deadlocks/doublelocks and no window locks	128	28

There are a number of other security measures which are considered to be 'good practice'. Households for example, are advised to leave a light on in a room of the house when it is left unoccupied in the evening, or to ask a

neighbour to keep an eye on the house when it is empty for several days. When householders were asked about any extra security precautions they took (over and above cancelling newspapers and milk), it was found that a variety of different behaviours were adopted, not all of which are necessarily to be recommended. In particular, a small number of householders said they locked internal doors when the house was empty, overlooking the fact that if a burglary should occur, this may simply result in more damage to property and not prevent goods being stolen. Nevertheless, as Table 3.3 below demonstrates, about 27% of householders consciously took some extra precautions against burglary at least when leaving their homes unoccupied for some length of time.

Table 3.3

Extra security precautions taken by the general household sample (n=458).

Security Precautions	*Households*	
	Number	*%*
Leave a light on in evening	***59***	***13***
Screw down windows	***4***	
Leave radio/TV on	***7***	
Bars on windows	***2***	
Ask neighbour to look after house	***14***	***3***
Hide valuables	***4***	
Lock internal doors	***13***	***3***
Other	***25***	***5***
Total taking extra precautions	*124*	***27***

Taken together, these results suggest that levels of household security are low with few householders having protected their homes to the standard usually recommended. Even those householders who have installed extra security hardware may not always use it. Although the number of households with good security was too small to allow detailed analysis of usage (particularly since it appeared that locking behaviour was different at different times of the day), seven of the 29 householders with good security admitted that they had left a door or window insecure on the last occasion they had left their house empty during the day. Thus, the results suggest that, particularly during the daytime period when burglary risks are highest, a burglar can choose his target from a large number of houses which are either insecure or have no extra security hardware fitted. Less than 7% of houses can be expected to present a burglar with any real obstacles to entry.

The prospect for improving security levels

Despite these low levels of security most householders appeared to be satisfied with the precautions they take. More than 60% of householders said they did not intend to install anv extra security hardware and only 40%

thought a crime prevention survey appropriate for them. This apparent lack of interest in improving security - not out of line with other surveys (eg. Marplan, 1973) - seemed to be less to do with an underestimation of the risks of burglary than with householders thinking their security good enough already (36%) or believing a burglar would get in whatever security was installed (18%).

These results suggest that persuading householders to improve their security cannot be done easily. Moreover, the large number of householders (93% in this study) with security which needs to be improved to reach recommended standards will greatly strain the resources of the police crime prevention officer (CPO) service. Much of the work of CPOs is directed towards commercial enterprises and in Maidstone sub-division, for example, only 153 private household surveys were carried out by CPOs in 1976 and 152 in 1977; about half the number each year were the direct result of burglary. This means that less than 1/2% of all households in the Maidstone sub-division will receive a CPO survey each year.

Crime prevention advice provided through publicity campaigns involving leaflets, posters, TV and radio has the advantage of reaching larger numbers of people. However, research into the effectiveness of such publicity campaigns has drawn pessimistic conclusions (see Riley and Mayhew, 1980, for a review). For example, a recent evaluation of a publicity campaign aimed at improving household security in the Harlech and Westward television region showed that there were almost no changes as a result of the campaign in the security behaviour or the attitudes and beliefs of householders, despite a high level of awareness of the campaign and a high level of awareness of the risks of burglary (Research Bureau Ltd., 1980). Other campaign evaluations have shown some improvements in people's attitudes to publicity recommendations, but they have consistently evidenced little change in security behaviour itself. While publicity may offer intuitively good advice, Riley and Mayhew suggest that the actual risks of victimisation may generally be too remote for people to bother to change established patterns of behaviour. Their argument also is that publicity may have limited impact because of simple forgetfulness on the part of potential victims, or because such publicity takes insufficient account of the 'costs' of security in terms of financial outlay, inconvenience and loss of time. Underlying beliefs and good intentions may be much less strong influences on behaviour than other more immediate considerations.

While advice and persuasion through publicity appear to have limited success as a means of improving security levels, insurance companies may on the face of it be in a better position to adopt a more coercive approach as illustrated by their success in persuading commercial companies to improve security (Companyman, 1977). Many households are insured against burglary and in this study for example an unusually high level of insurance cover emerged with some 90% of householders saying that they held current insurance

policies. It also appears from the interviews with victims that they frequently look to insurance companies for security advice rather than to the police which in itself suggests there may be some scope for insurance companies to encourage better security at least among more affluent households. How much advance can be made, however, remains rather unclear (cf. Litton, 1982). To an extent, insurance companies already vary premiums to take security protection into account, and in some cases they refuse to provide cover against burglary unless certain devices are installed. Achieving higher standards across the board, however, poses some difficulty in that different households present very different security risks and more stringent security requirements for insurers would present them with a considerable burden in checking whether householders had actually installed the devices specified. At least as important, too, is the fact that the theft premium for domestic insurance is a small proportion of the total charge for household cover, which leaves little room for offering discounts as incentives to householders to improve security.

A longer term approach to improving security standards is through legislation and the Home Office is now consulting the British Standards Institute about the inclusion of a section on security in the Institute's codes on building design. However, these standards would be applicable almost exclusively to new buildings and so would have little relevance for the security of the majority of houses which make up the pool of potential targets of burglary.

In conclusion, then, although the vast majority of households have poor security, the possibilities of improving security levels to any significant degree appear to be limited. In view of this, it is important to consider more specifically what part security actually plays in determining burglary victimisation in comparison with other factors, and whether crime prevention advice should be modified or re-directed in the light of these findings. These issues are explored in the following section by considering not only the characteristics of the general household sample but also those of a sample of victim households.

4 The determinants of burglary victimisation

The results of other research studies concerned with burglary have suggested that burglary risk tends to be clustered by location. Whatever the reason for this, it is well-known that the risk of burglary is not constant for all sub-areas within a particular police-force area, or even for streets and clusters of houses within a particular police sub-division. North American studies (Cohen and Cantor, 1981; Waller and Okihiro, 1978) have suggested the highest concentrations of burglary in or close to socially disadvantaged housing areas. Baldwin and Bottoms (1976) in Sheffield found most burglary in an area of privately-rented dwellings, mainly run-down terraced housing. Tuck and Southgate (1981) in Manchester found far higher burglary rates in council flats to the north of one particular police sub-division than in terraced housing to the south. Variations in risk can also be found which seem to be related to such factors as occupancy (Waller and Okihiro, 1978; Maguire,1982), reward (Baldwin and Bottoms, 1976; Cohen and Cantor, 1981) and the design features of houses (Newman, 1973).

The tendency for burglary risk to vary for clusters of houses within larger areas causes particular difficulties in comparing the characteristics of houses in the general household sample used in this study (a random sample of houses in the four sub-divisions studied) and the houses in the victim sample (drawn from a set of burglaries reported to the police). It is possible that some of the differences found between the two groups may do no more than define the characteristics of houses in the particular localities where burglaries occurred and that these areas are prone to burglary for other reasons.

Nevertheless, differences between the two groups are worthy of inspection. Analysis of the types of houses lived in by victims included in the present study compared with those lived in by the general household sample reveals some quite strong differences. For example, detached houses are more frequently the targets of burglary than terraced houses (Table 4.1 and Table C.1, Appendix C). When the two samples are compared on more detailed characteristics, further differences can be identified.

Environmental risk

A fundamental influence on a burglar's choice of target when selecting one house as opposed to another is likely to be the ease with which it can be approached without being seen. Recent studies of burglary in America have considered the design features of burgled houses, much in line with Oscar

Table 4.1

Types of houses lived in by the victim and the general household samples

Type of house	*Victim sample*	*General household sample*
Detached house	50	15
Semi-detached/short terrace	31	66
Bungalow	16	11
Long Terrace	1	5
Others	1	2

Newman's (1973) attempt to relate levels of crime and vandalism on public housing estates to the design features of these estates. Newman used the term 'defensible space' to describe a residential environment designed in such a way as to allow householders to supervise and be seen to be responsible for the areas in which they live. He argued that those housing projects which are lacking in defensible space are particularly prone to crime.

Following on from Newman's work, several recent studies of burglary have considered the design features of victimised houses. Waller and Okihiro (1978) for example took some pains to examine victimisation in terms of defensible space notions in their study of burglary in Toronto and studies by Reppetto (1974) and Bennett and Wright (1981) also looked at these factors. Although no attempt was made in this study to test the theory of defensible space as such, some of the notions encompassed by this theory have been used to consider aspects of access and surveillance which reflect 'environmental risk' or physical vulnerability.

The site surveys, carried out at the dwellings of each household in the victim sample and in the general household sample to measure aspects of environmental risk, revealed a number of differences between the two sets of houses. Victim houses were for example more likely to be distant from other houses so that gardens were not overlooked and obscured from public view by trees, shrubs, fences and by virtue of being set a long way back from the road in which they stand. The housing plot was frequently not adjacent to the gardens of other houses but next to some other land use, particularly privately owned open space such as farmland and on the housing plot there was usually access from the front to the back of the house on both sides. Some housing features such as the number of legitimate access points to the housing plot or the distance of the house from street lighting were not found to distinguish victim houses from those of the general household sample. Those that did, however, clearly reflected the two main components of access and surveillance.

As a means of clarifying the relationship between environmental risk and burglary victimisation, an index was produced on the basis of fourteen different variables of access and surveillance (see Appendix D) which were

found to be particularly effective in discriminating houses lived in by the victim sample from those lived in by the general household sample. The index was derived by the simple procedure of allocating a score of one for any surveillance or access risk factor present and adding these scores together for each house. The index therefore expresses the environmental risk differences between the two sets of houses in terms of the total number of environmental risk factors associated with each individual house. It shows that houses lived in by victims are more likely to display several environmental risk characteristics than houses generally. The median score for victims' houses on the index was 5 compared with a median score of 2 for houses lived in by the general household sample. Only three victims did not score at all, compared with 55 of the general household sample; and 20 victims had the highest score of 13 compared with only one of the general household sample. Moreover, about a quarter of the victim sample had been burgled on more than one occasion during the time that the present households had lived there and this group of houses were more likely than other victim houses to display a large number of features of environmental risk. As a group, these 106 multiple victims had a median score of 7 on the index whilst for the rest of the victim group the median score remained 5 so that the difference between the single victim group and the general household sample was significant ($p<.05$). Clearly then houses that are burgled tend to be those characterised by poor surveillance opportunites and good access.

The power of access and surveillance factors in putting some houses more at risk than others is illustrated in Table 4.2. The environmental risk scores for the sample of victims who had experienced burglaries over an eight and a half month period, have been converted to the known annual burglary rate for the area. The environmental risk scores for the general household sample have

Table 4.2
The annual risk of burglary for houses in the Kent study area associated with the 'environmental risk' of the housing site.

Score on the 'environmental risk' index		*Estimated annual risk of burglary*
0	*(Low)*	1 in 1845
1		1 in 233
2		1in218
3		1 in 113
4		1in95
5		1in92
6		1in46
7		1in43
8		1in20
9 and above	(High)	1in13
Average risk		1in99

been applied to the total number of households in the study area in 1979. The estimated annual risk of burglary is simply the ratio between the estimated total number of houses in the study area and the estimated number of burgled houses with each index score. (A more detailed table is provided in Table C.2, Appendix C.) Because of the small size of the general household sample, the figures shown nave a fairly large margin of error attached to them; the relationships however are sufficiently strong for this not to undermine the trend.

Interestingly this result - obtained from an analysis of burgled houses and houses generally - is supported by results obtained by Maguire and Bennett in their study of burglary, using the very different approach of interviewing known burglars (Maguire, 1982). In that study, burglars admitted that among their most important concerns were to select a house wich was unoccupied and to ensure that there was a viable escape route. A further consideration mentioned by many offenders was the degree of cover afforded by walls, trees, shrubbery or other dwellings as well as the advantage of avoiding a house in full view of neighbours' windows. Similar results have emerged from the work in hand by Bennett and Wright (1981) which is also attempting to determine how houses are selected as targets of burglary.

The extent of occupancy

The most striking characteristic of burglary is that it usually takes place in houses which have been left unoccupied. Of all the burglaries analysed, 80% took place in dwellings where there was nobody in the house at the time. As many as 81% of all daytime burglaries and 94% of all evening burglaries in the study area took place when the house was not occupied. Night-time burglaries naturally tend to take place when the house is occupied. Some 78% of all night-time burglaries included in the study occurred in occupied houses. However, this group of occupied night time burglaries still represented only about 15% of all burglaries in the victim sample.

The fact that all houses are on some occasion left empty must be a major factor in explaining why residential burglary takes place at all. However, it does not necessarily explain why particular houses are burgled. More telling would be evidence that victimised houses compared to houses generally are more likely to be left empty for longer periods of time. Such differences have already been supported by Reppetto's (1974) study and that of Waller and Okihiro (1978) as well as by more recent analysis of victimisation data for Holland (Van Dijk and Steinmetz, 1980) and America (Cohen and Cantor, 1981).

In this study, analysis of occupancy at the time the initial visit was made to interview householders suggests that victim houses may be left unoccupied more frequently than houses generally. On the occasion of the first visit for example, 44% of victim houses were unoccupied compared with 36% of the general household sample (significant at $p<.05$). Data from the interviews

also suggested differences between victim households and households generally in terms of patterns of occupancy during the daytime and evening periods in the seven days preceding the interview and in terms of longer absences from home over the last year (see Table 4.3).

It is possible that the experience of a burglary might have altered the usual occupancy patterns of victim households particularly since interviews were carried out fairly quickly after the event to ensure good recall of the circumstances in which the burglary took place. However, information about movements over the preceding seven days has the advantage of being more likely to be accurate than general information about occupancy patterns. In many cases the seven days preceding the interview would anyway include some days before the burglary occurred and in the case of daytime occupancy patterns when householders may be at work there may be little opportunity to modify occupancy. It is anyway difficult, in the absence of any firm data, to guess whether victims are likely to spend more time at home or away from home as a result of the burglary; doubtless, different householders react in different ways.

It is impossible to allow for these uncertainties in the victim data but as Table 4.3 shows there is prima facie evidence that victims are significantly more likely to leave their homes empty than householders generally. They are also likely to leave their homes for longer periods of time.

Table 4.3
The extent of occupancy among the victim and the general household samples

	Victim sample	*General household sample*
House mostly unoccupied during the day in the last week	133 33%	87* 19%
House unoccupied most or several evenings during the last week	104 25%	64* 14%
House left empty for more than 2 weeks in last year	293 71%	179* 39%
Total sample	413	458

(*Differences significant at $p<.05$).

The importance of occupancy in relation to the risk of burglary is highlighted by the fact that it was those victims who were most likely to leave the house unoccupied during the day who were burgled at that time and those who were most likely to leave the house unoccupied in the evenings who were burgled

then. Quite probably, the extent to which a house is left empty is important not because a burglar analyses the patterns of absence of particular householders but because it increases the chances that a burglar who selects the house as a target for other reasons will find it empty. Householders appear to be particularly at risk when the house has been left empty for several days - for example when a household is away on holiday (26% of the burglaries in the victim sample) - or when all members of the household are out all day at work or at school (10% of all burglaries in the sample). Sure signs of unoccupancy are milk bottles left on doorsteps, notes left on doors and garages left empty and open. On the occasion of the first call made to interview the victim sample and the general household sample there was some such overt indication of unoccupancy in about 20% of those houses which were unoccupied. This was true of both samples.

The burglary risks associated with different occupancy levels are shown in Table C.3, Appendix C. Households in each sample were given an occupancy score calculated on the basis of the number of hours the house was left empty in the week before the interview and risk rates were derived as for environmental risk. These risk rates must of course be interpreted with caution since they leave out of account any effect of the geographical clustering of burglaries - which could be an underlying variable contributing to the 'occupancy' effect.

Potential reward

The probable value of goods indifferent households might well be expected to influence a burglar's choice of target, and there is evidence to support this assumption. For example, Baldwin and Bottoms (1976) in their study of the patterns of crime in Sheffield. found that those houses most vulnerable to burglary were dwellings with the highest rateable value which might be expected to contain a large number of valuable items. In the present study, the rateable value of houses was similarly used as a rough indication of potential reward. Both the victim and general household samples were divided into two groups with high and low rateable values on the basis of the median rateable value of all houses in the study area. It was found that there were significantly more victims living in high rateable value houses (69% of the victim sample) than there were householders generally (48% of the general household sample) and that the risk of burglary for houses in the study area tended to increase with increasing rateable value (see Table C.4, Appendix C).

Although on the face of it, then, this evidence indicates that reward, as well as environmental risk and occupancy, is related to victimisation. there are admittedly other ways in which the difference in the rateable value of houses in the two samples could be explained. Thus, occupiers of high rateable value houses might be more inclined to report burglaries to the police. The gist of present evidence (eg. Fishman. 1979) is that the seriousness of an offence

(rather than, say, the socioeconomic class of the victim) is of overriding importance in whether or not the police are informed, although as burglaries in more affluent houses may result in higher losses, differential reporting may still provide an explantion for the rateable value differences found between the two samples in this study. It is in any case likely that burglars will vary in experience, skill and expectations and whereas an experienced burglar with good contacts for 'fencing' such items as silver and jewellery may choose affluent houses, a young, less skilled burglar in search of ready cash will choose less wealthy households. Again, the problem of geographical clustering of victim houses means that differences between these and the houses of the general household sample could be artefactual. But the quite marked differences in these data do suggest that there is probably some association between potential reward and burglary victimisation.

Security

The data presented in Chapter 3 demonstrated the low levels of household security which prevail generally. The fact that most houses are less than well secured may help explain why residential burglary occurs at all, just as the fact that most houses are at some time left unattended may be important. However, from the point of view of target hardening policies it is important to consider whether relative security levels can help to explain the selection of particular houses as targets of burglary. With such generally low levels of security it is conceivable that the chance of selecting a target house with good security is so unlikely that a burglar will not consider security relevant to target selection. On the other hand, if security hardware does present a problem to a burglar, with such a choice of unprotected houses one might expect houses with good security to be avoided. Thus even in present circumstances houses which are burgled might be expected to be more poorly secured than the neighbouring houses.

Comparison of the security at the time of the burglary of victim houses in this study with the security of houses lived in by the general household sample did not suggest that as a group victim houses were less well secured than houses generally. In terms, for example, of the basic security measures of closing windows and locking doors when leaving a house empty, 22% of the general household sample admitted to leaving at least one door or window insecure on the last occasion that they had left their house empty during the day. Similarly, 22% of victims burgled during the daytime when their homes were empty had left a door or window insecure. Both groups are less likely to leave their homes insecure when empty at other times, but the numbers in either group actually leaving their homes empty at these other times are too small to allow a reliable comparison of reported behaviour which might refer to an occasion some months before the time of the interview. Security behaviour during the day is in any case more important since this is the time when burglaries are most likely to occur.

As Table 4.4. illustrates, victim households were also found to be no less likely than households generally to have installed extra security devices. Indeed, 12% of victim houses were found to have 'good' security compared with only 7% of houses in the general household sample. Of those victims who had been burgled on more than one occasion, a somewhat higher proportion (19%) were identified as having 'good security', doubtless because they had improved their security as a result of these previous burglaries. However, even when victims, for whom the burglary in question was the first, are compared separately with the general household sample there is no evidence of lower levels of security: 10% of first time victims had good security. Only 23% of all victims had not installed any mortice deadlocks or window locks at all compared with 28% of the general household sample.

Table 4.4

Levels of security among the victim and the general household samples.

Security level	*Victim sample*	*General household sample*
Good security		
burglar alarm	*20 (5%)*	*12 (3%)*
mortice deadlocks/double locks on all doors and window locks on all windows	*10 (2%)*	*(2%)*
mortice deadlocks/doublelocks on all doors and window locks on all downstairs windows	*21 (5%)*	*10 (2%)*
Partial security		
some doors without mortice deadlocks/ doublelocks and/or some downstairs windows without window locks	*269 (65%)*	*301 (66%)*
Poor security		
no mortice deadlocks or window locks	*93 (23%)*	*128 (28%)*

Some 28% of the general household sample were also found to take extra security precautions such as leaving a light on in the evening in an empty house. About 38% of victim households also claimed to take such precautions and half of these victims said that they had taken these precautions on the occasion of the burglary.

These data demonstrate that the security of victim households is no lower than the average for the four police divisions studied. They cannot however give a firm answer to the effect of security on the chances of burglary *within* a highly burgled area. In the first place, these data refer only to burglaries reported to the police and it is possible that the security practices of other victims is more lax. In some ways, this is not an unreasonable supposition:

reported burglaries are more likely to be serious and to involve the theft of valuables which the householder may take some care to protect or for which he or she may have insurance cover. However, in view of the fact that the security levels of the victim houses included in the study are anyway so low, the inclusion of non-reported burglaries may well not have made any significant difference to the findings on security reported here.

Secondly, the victim sample and the general household sample are not matched either geographically or in terms of the other factors which this study has shown to be related to burglary victimisation. Nothing can be said about the possible effects of geographical clustering on the results but it can be noted that when the victim and general household samples were divided into high and low risk groups on the basis of environmental risk, occupancy rates and potential reward (there were 173 high risk victims and 71 high risk general households) there was still no evidence of an association between security levels and victimisation.

Finally, the data obtained from both samples is by and large reported behaviour which is unlikely to be completely accurate although there is no reason to suppose one set of sample data to be any less reliable than the other. The only evidence which can be offered on the validity of the data is that in the case of some victims there was information in police reports that security devices were in use at the time of the burglary on the door or window where entry was made. From this police evidence alone, it is clear then that burglars can and will break into houses with good levels of security protection. Even a burglar alarm may not guarantee protection against burglary. The installation of an alarm can, however, still have important benefits to the individual householder. The results of this study and evidence from police records suggest, for example, that where an alarm is in operation the financial losses tend to be relatively low.

The relative importance of factors in determining burglary

Environmental, risk, occupancy patterns and reward all appear to be related to burglary in discriminating between the victim sample and the general household sample. The question of which factor best discriminates was explored by the use of the statistical technique of discriminant analysis. This is simply a method of combining a set of variables in such a way as to produce the best discrimination between two or more groups. In the present excercise, measures of environmental risk, occupancy, reward and security were used as variables to differentiate victim households from householders who had not been burgled in their present home. Environmental risk was measured according to the index described earlier; occupancy was measured in terms of the number of hours the house had been left empty during the last seven days; reward was measured in rateable value groups; and security was measured in terms of overall levels ranging from the best security of a burglar alarm to the poorest security of no mortice deadlocks or window locks at all.

The most important factor in making the discrimination between victim households and households who had not been burgled, proved to be environmental risk, followed by occupancy rates and reward in this order. Relative security levels did not contribute to this discrimination. It must, however, be remembered that because the environmental risk index was constructed on the basis of those individual measures which themselves showed the most significant differences between the victim sample and the general household sample, its importance as a discriminator will inevitably be maximised. On the other hand, there is no reason to think that the importance of environmental risk is a product of the particular types of houses found in the study area. A comparison of houses in the study area with data on house types in the country as a whole derived from the English House Condition Survey (1976) revealed no significant differences.

Thus, it seems likely that in other areas houses which have suffered reported burglary will be found to differ from a general household sample on the same factors (vulnerable for design reasons, frequently left empty and offering relatively high rewards) and that further studies would again show security levels not to discriminate effectively between a set of burgled houses and a general sample from a wide geographical area.

In the area of Kent studied, two types of houses seem to be particularly at risk. The first of these is the large high rateable value house in its own grounds, in the country, distant from most other houses, not easily visible from public areas and frequently left unoccupied. The second is the high rateable value house, in town, also frequently left unoccupied, often on a busy through road but with a fairly large private garden so that the house is not so easily overlooked and not easily visible from public areas.

Of course, not all victim houses in this study could be described as high risk in terms of physical vulnerability, occupancy or reward. Those local authority houses which were burgled, for example, tended to be of low reward and low environmental risk. Such burglaries also tended to involve the loss of relatively small amounts of cash rather than goods and in almost 50% of cases entry was made via an insecure window compared with 18% of all other burglaries in the sample. The number of burglaries to local authority housing was small (44) and no firm conclusions can be drawn about the nature of such burglaries. However, it appears that basic precautions of closing windows and locking doors might in these cases be important in determining burglary risk.

The evidence from this study is consistent with the kind of two-stage model of burglary decisions proposed by Maguire (1980). Original decisions as to a burglary target may be made at an area level. Within these areas, houses are chosen at the second stage of target selection because of the potential reward they offer, because they are not occupied and because they can be easily approached without the burglar being seen. Security does not distinguish burgled houses from those in the area as a whole but nothing has been shown

as to its specific effect for 'high' risk houses with easy access, low occupancy and high reward within a frequently burgled sub-area.

The relative importance of risk factors in determining burglary victimisation at the second stage of target selection can best be understood in the light of the argument that most burglaries are pre-meditated acts involving a 'sought' rather than a 'presented' opportunity (Maguire, 1980). A burglar must make his initial choice of a suitable target for burglary from outside the housing plot. Some impression of both reward and occupancy can be gained at a distance from the house, but it is aspects of access and surveillance which can be most easily ascertained before approaching the house and which are, therefore, most likely to influence the choice.

Just as occupancy and reward cannot be assessed at a distance from the house neither in most cases can security. As such, the initial selection of a target house for burglary may be made without particular regard for security. Whether security levels affect a final decision to burgle or not burgle once a house has been selected for ease of access, low occupancy and high reward value cannot be fully answered from this study. However, it is the strong impression of the researchers, who inspected personally all burgled houses in the victim sample, that if a house is empty and not overlooked, so that a potential burglar is well concealed and can go about gaining entry at some leisure, even those houses which have reasonably good levels of security (such as mortice deadlocks and window locks) may well present no real problem to potential burglars. The repeated burglaries experienced by some householders in the victim sample despite good levels of security strengthens this intuitive view, which is reflected in the results of other research that has attempted to assess the benefits to be derived from household security (Reppetto, 1974; Waller and Okihiro, 1978; Maguire, 1982; Bennett and Wright, 1981).

5 Preventing burglary

Security

The study presented here suggests that levels of household security are low enough to provide an intending burglar with plenty of opportunities for theft but that the scope for target hardening may well be limited. Householders are not easily persuaded to improve security but more importantly, because many houses are frequently left unoccupied and are not easily viewed from private or public areas, the requirements of security devices are particularly high. The evidence on methods of entry used by burglars suggests that most are prepared to use force or break glass (about 30% of the burglaries in the study area involved forcing a door or window and 40% breaking glass). It could be, then, that when a burglar has plenty of time to make an entry because the house is unoccupied and not overlooked, the sort of security traditionally recommended is simply not strong enough to withstand the force used by the offender, though it is of course possible that other sorts of security might persuade a burglar to seek another appropriate target. For the more affluent households, alarms may be an appropriate solution if only because the value of goods taken is likely to be lower as a burglar makes a hasty retreat before anyone is alerted by the alarm. Any stronger security, such as bars on windows or steel doors may be considered unacceptable.

The importance of surveillance also suggests that security that prevents access to the housing plot might be a more effective option. A well-protected perimeter might have an immediate impact on a burglar when he is making his target selection and any delay in gaining access to the housing plot would also maximise the chances of neighbours or passers-by noting what was going on. However, high walls and strong and secure gates etc. are expensive and except perhaps for houses standing in very large grounds they are also unlikely to be an attractive way of protecting a house.

Those households which appear to be most likely to benefit from installing and using the recommended security hardware are householders whose homes are easily visible from public areas as is frequently the case with local authority housing. Such households are, however, in many cases likely to have low incomes so that the main problem for target hardening policies in these cases is one of persuading householders to install security. In the case of local authority houses security hardware might be installed by the authority itself although there is no guarantee that it would be used. The cost of installation may also seem to be a heavy burden for a local authority in the

context of other housing commitments. However, since burglaries to local authority housing were only a small proportion of the sample in this study these isues are really beyond the scope of this report.

Thus the main conclusions to be drawn are, firstly, that target hardening policies alone are unlikely to have a major impact on levels of residential burglary reported to the police. One can only guess at the effects on levels of unreported burglaries. The number of unprotected and vulnerable properties is currently so large as to make the possibilities of significantly improving general household security remote. Moreover, in high risk situations, the effectiveness of acceptable security hardware is probably limited. Even if security protects one individual household, the same security may not protect another household living in a house with different characteristics. In situations of low environmental risk or low reward where security is potentially most powerful, householders may not be easily persuaded to use elaborate security hardware. Secondly, then, the same crime prevention advice may not be equally appropriate for all households and some attempt to take account of the particular circumstances of households in terms of site location, occupancy and reward, for example, seems to be called for.

Environmental risk

The importance of environmental risk in determining burglary victimisation points to some consideration of crime prevention tactics based on providing dwellings with better surveillance opportunities. Although, because of the enormous number of potential targets and the fact that burglary offences occur on private property, it would require a massive and unrealistic increase in police manpower to provide patrol cover at or near the scene of every potential burglary, one tactic which makes at least some modified use of surveillance - namely burglary squads - has been the object of some optimism. Burglary squads often involve nothing more than a concentrated effort on burglary in a particular area by a team of detectives employing traditional police methods. Occasionally they can involve concentrating on a 'target' burglar known to be working in the area. A great many forces now use these squads but although claims of success have been made in parts of the MPD and in West Yorkshire, for example (Bright, 1967), in many instances these claims have not been matched by rigorous evaluations. One would not expect a more concentrated effort by the police on this particular offence to yield a higher level of success given the difficulties stated above. Furthermore, problems are likely to arise in trying to sustain any manpower intensive effort for long periods or over a wide area.

hi America in particular, local residents of particular housing areas have pursued a surveillance approach to burglary and other residential crime through a wide variety of community surveillance schemes organised around such things as 'Block Watches' or resident patrols. A review of community surveillance schemes (Yin et al., 1977) suggests that 'block watches' are more

effective than patrols largely because their organisation is simpler and their target more clearly defined. A project in Seattle, for instance, relied mainly on 'Operation Blockwatch', a scheme in which groups of 10-15 neighbouring householders met regularly to pass information about when they could be out of the area and to organise rotas for such tasks as cutting grass or collecting papers to reduce the signs that particular houses were unoccupied. These groups also undertook to watch each others' houses and to keep the police informed of suspicious strangers. Each house displayed a window sticker stating the occupants were in the scheme, and also that the property was 'marked'. An evaluation of this scheme (Cirel et al., 1977) has shown that members are much less likely to be burgled than other householders in the area who had not joined, and that no significant 'displacement' of crime to other parts of the neighbourhood occurred.

There is some suggestion, then, that if residents are effectively organised they might be able to protect themselves against burglary better than the police with restricted resources. However the gains are not unequivocal. While the Seattle project has been deemed successful, other community schemes have not fared so well. Most effect has been found in terms of reducing the fear of crime, not actual levels of offending; and the sustained enthusiasm they require also tends to dissipate rapidly. Reductions in crime, moreover, appear in general more in relation to vandalism than burglary, where offenders may doubt whether the community can or will cover all the private locations in which they operate. It is arguable also that in this country community crime prevention initiatives will be harder to get off the ground, and to sustain. Higher risks of residential crime in North America provide the public with a greater incentive to take protective measures, and more positive feedback when burglars are caught. It may also be in this country that the public rely more on the police for protection against crime than in North America where self-help traditions may be an important factor in encouraging local communities to respond themselves against threats to their property.

The possible gains from better surveillance by the public have also led many people to support the "architectural' solutions of Oscar Newman (1973) to design housing areas to give residents a better view of vulnerable areas and an increased sense of responsibility for the areas surrounding their homes. Ever-expanding research on Newman's 'defensible space' hypothesis (see, for example, Mayhew, 1979; Merry, 1981) suggests that defensible space measures may have less of a part to play in reducing residential crime than was originally thought. For one thing, housing design is only one factor which determines how well residents can or will protect their local environment: as Newman himself now argues (Newman and Franck, 1980), the type of residents they are, and - on public housing estates particularly - the quality of management they are receiving seem rather more important. In addition, defensible space approaches seem most applicable when new housing is being planned; modifying existing complexes poses considerable difficulties as has

been shown in many 'action projects' themselves. Many changes which would promote defensible space, too, are antithetical to fire regulations and to householders' preference for privacy. Not being overlooked and backing onto a park or farmland are currently considered highly desirable features of a house and its site. The advantages of such openness would far outweigh any disadvantages it might bring in terms of making the house more susceptible to the occasional burglary.

Better architectural and environmental facilities, however, are continuing to form part of a number of interventions in residential localities being promoted both here and abroad to reduce crime and urban deterioration, particularly in public housing localities. In the United States, for instance, the narrower initiatives which fell under a ' crime prevention through environmental design' heading (eg. Rouse and Rubenstein, 1978) have now widened into broad approaches incorporating target hardening, 'defensible space' improvements, new management practice and community welfare work (see Curtis and Kohn, 1982). Here, a similar movement is afoot, backed by the Department of the Environment and many local housing authorities, to cope with the range of problems present on some public housing estates, including those of burglary and vandalism (see Department of the Environment, 1982). Again, these initiatives are muti-faceted and demand the co-operation of several agencies: they focus on better allocation and letting practices (to avoid empty properties and put people in housing most suitable to their needs), on rapid repair of damage, better social service and housing department attention, environmental refurbishing (sometimes based on defensible space principles), higher levels of policing and target hardening innovations (such as putting entry phones in flats).

Although most projects have not (as yet at least) been subject to hard evaluation, both the Department of Environment Priority Estates Project and the work of NACRO (Osborne, 1982) have been considered to have significant impact: action using Priority Estates methods on a problem estate in South London, for instance, is said to have substantially reduced property crime in the flats which comprise the housing development. One may need to be sanguine about anything other than a short-term effect on crime following such initiatives: a heavily resourced crime prevention project in Hartford, Connecticut, based principally but intelligently on defensible space, target hardening and environmental improvements showed, after sound evaluation, initial reductions in crime which were not for long sustained (Fowler and Manigone, 1982). Even so, the broad-based approaches now being pursued merit further encouragement not least because some of the worst incidence of property crime (vandalism, theft and autocrime as well as burglary) may be on particular local authority estates - areas not well covered by the Kent study. Even if the effects of the action taken on crime itself do not at the end of the day prove cost-effective, public distress about 'nothing being done' may be allayed and many other problems and inconveniences of living in such

localities are likely to be lessened. From the point of view of burglary prevention at least, hard evaluation of the schemes is a top priority.

Occupancy

Turning to occupancy - another seemingly important determinant of burglary victimisation - the preventive possibilities seem slight, mainly because occupancy patterns (which follow from working wives, children at school and leisure pursuits taken outside the house) are likely to be largely inflexible. Tactics to disguise the fact that a house is empty already form part of security advice and good practice: lights off at night, cars being absent from a drive or garage, and milk bottles left on the doorstep appear obvious signals to a burglar that a house is empty (Maguire, 1982). Even so such techniques may underestimate the skill of the burglar. Although some initial impression of occupancy can be gained from the street before approaching the house, the importance a burglar appears to put on whether or not a house is empty is such that he is likely to need more definite evidence than can be gained from observation before attempting a burglary. Maguire's interviews with offenders show that in many cases a burglar will, for example, simply knock on the door of a house to establish whether or not it is occupied. There is also an interesting conflict between good security practice and the need to disguise the fact that a house is empty: closing all the windows on a hot summer day may present the burglar with a sure sign of no-one at home.

Reward

The policy implications of the finding that victims in Kent tend to live in houses which offer the greatest rewards are again not promising. There is little way in which the external impression of what the 'catch' from a house might be can be changed, especially when people want their house to look imposing. Altering the rewards for a burglar by removing items likely to be stolen is in principle a sound idea although householders are hardly likely to welcome such an inconvenience on any regular basis. Moreover, hiding away valuables may only stop these being taken: it will not prevent an entry being made or the theft of other household items which patently cannot be removed on any large scale.

Property-marking schemes may go some way towards discouraging burglars. These initiatives known in America as 'Operation Identification Schemes' aim to encourage householders to mark all their valuable possessions with indelibe codes and to advertise this fact by means of stickers in prominent positions. In this way it is anticipated that a potential burglar will be deterred from even attempting to break in by the knowledge that any belongings he might steal will be unique (and thus easily identified) rather than anonymous. Evaluations of such schemes (Heller et al., 1975; Zaharchuk and Lynch, 1977) have shown that although participating households enjoy reduced chances of burglary, any overall benefit in terms of a reduction in the general level of

burglary was difficult to achieve because the levels of membership of such a scheme in any particular area were generally low. It seems reasonable to expect that the lower levels of burglary in this country compared to North America would have the effect of producing even lower membership levels.

The police in North America have also directed efforts towards reducing the value to burglars of non-cash rewards. Thus 'sting' operations in which under-cover policemen set themselves up as 'fences' with a view to making a mass arrest when they have a sufficiently large clientele of burglars (Law Enforcement Assistance Administration, 1979), seek the reduction of burglary not so much as a result of the arrests made but rather through a general disruption of the trust between fences and burglars. As a result of this disruption the disposal of stolen goods may be made more difficult. Such tactics may not be considered either legally or morally acceptable in the courts, but they highlight the importance of the 'fence' for certain kinds of burglary. There are of course many burglaries where 'fences' are not used, but it is nevertheless held by many policemen here that the demand for stolen goods to some extent generates the supply. By focusing preventive tactics on the 'fence', an area which is under-exploited in this country, fairly significant gains in terms of a reduction in certain types of burglary might be achieved.

Conclusion

The results of this study suggest that although levels of security amongst households are generally low, burgled houses are distinguished from other houses not so much by the relative security protection but by surveillance and access opportunities, by occupancy levels and by potential reward. This finding has important implications for methods designed to prevent burglary. The relevance of surveillance opportunities and occupancy is particularly interesting. Not only do poor surveillance and an empty house mean that a burglar can approach and make an entry to a house without being seen but precisely because the burglar is unobserved, he may also have sufficient time and opportunity to deal effectively with security hardware which in other circumstances would prove more problematic. The requirements of security hardware for houses which are not easily visible from public areas or by neighbours may therefore be somewhat greater than for other less vulnerable houses.

This study cannot provide the final word on the relative importance of factors which determine why a particular house is burgled rather than the neighbouring house. Any further research to explore in more detail the importance of security and of other factors which this study suggests determine burglary victimisation would need to be carried out on an area basis, comparing quite specifically the characteristics of burgled houses with other houses in the immediate vicinity. However, in as much as the evidence from the study reported here reflects results from other studies of burglary (Maguire, 1982; Bennett and Wright, 1981; Waller and Okihiro, 1978) action

research projects aimed at developing and evaluating burglary prevention methods may be a more appropriate direction for future research.

It already seems clear that burglary prevention policies should adopt a broader perspective than simple target hardening and that different approaches may be appropriate for different types of housing and different types of area. Local forces should, perhaps as routine, map carefully on a consistent basis the incidence of burglary in their force area. When particular burglary prone localities are identified then appropriate effort can be directed specifically towards these areas. For public or private housing estates, initiatives along the lines of the Priority Estates Project or the Seattle Project may be most suitable. For areas where houses are more widely dispersed and especially where householders are relatively affluent, a burglary squad approach may prove most productive. Where improving security is thought to be appropriate advice the importance of complete security protection rather than the piecemeal installation of door locks and window locks should be emphasised.

Whatever method is chosen, it seems important to carry out prevention at a local level, involving the local community. Not only is this likely to be more cost effective than a national, or local authority based blanket approach to burglary prevention, but there is also evidence, from the Seattle project for example, that such community based projects help to reduce fear of crime. Such fear can itself be as detrimental to the community as the actual occurrence of burglary.

Appendix A
Burglary patterns in Kent

It is useful to analyse just exactly what the basic patterns of burglary were in the four police sub-divisions of Kent where the study was conducted. Where appropriate, comparisons are drawn with other sets of data. One of these comprises some six and a half thousand cases of residential burglary recorded or known to the police in the Thames Valley in 1975 which were analysed by Maguire as part of his study. This set is referred to as "Thames Valley 1975 full data". Maguire also conducted interviews with victims in the three selected sections of this area (referred to as the Thames Valley sample) and obtained one full year of police data (between 1977 and 1979) for these three sections (referred to as the "Thames Valley three section data"). Where appropriate information for England and Wales as a whole is also included.

The Kent data

The crime data for the study consisted of information successfully collected from some 413 victims of burglary who lived in houses rather than flats and who were burgled between the beginning of March and the middle of November 1979 in the four police sub-divisions of Maidstone, Tonbridge, Malling and Sevenoaks. In addition to those victims the researchers also identified from the police crime report books held at sub-divisional offices a further 122 victims of burglary who were either impossible to contact or who refused to co-operate. In all some 561 incidents of residential burglary (including flats) were identified from crime reports. This compares with some 644 offences subsequently classified by the police as being the total number of residential burglaries occurring in the relevant area from March to November. This discrepancy may arise from the fact that the researchers excluded those offences which were correctly classified as residential burglaries but which in fact occurred in garages within the confines of the garden.

Burglary patterns

At the outset it must be said that it would be unwise to place any very great reliance on a detailed analysis of the spatial patterns of burglary derived from the data collected for this study because of the small numbers involved. For this reason only very broad trends are discussed in this section. As part of the analysis it was possible to compare data for 1979 with Kent data collected earlier for a comparable period in 1978. Not only is it true that the rural areas are apparently consistently more heavily subject to residential burglary than the urban areas but also within these rural areas there is a basic stability in the

concentration of burglary in certain parishes. A similar set of parishes - in the Maidstone case those closest to the town; for Sevenoaks those in more accessible locations - are subject to higher rates of burglary victimisation than other parishes when two years' data are compared. Against this, short term fluctuations are apparent when the data are examined on a weekly basis. Within the set of highly vulnerable situations some areas are more vulnerable than others at particular times. Burglaries tend to occur in distinct clusters, a trend which probably reflects the methods of operation of burglars or groups of burglars in that they work in particular areas, committing a whole string of offences at particular times, and then move on to another area.

Table A.1.
When burglary occurs

Time ofday	*Kent 1979 sample%*	*Thames Valley sample %*
Daytime (6am-6pm)	38	47
Evening (6pm-12pm)	17	14
Overnight (12pm-6am)	20	17
Not known	25	22
	100 (n=413)	100 (n=322)

Table A.2.
How burglary occurs: point of entry

	Kent 1979 sample %	*Thames Valley three section data %*
Rear window	49	48
Front window	9	7
Side window	11	6
Rear door*	21	16
Front door*	7	20
Side door*	3	2
	100 (n=382)**	100 (n=902)**

* Includes french windows
** Excludes attempted burglaries and points of entry not known.

Table A. 3.
How burglary occurs: method of entry

	Kent 1979 sample %	*Thames Valley three section data **
Window insecure	15	16
forced	22	25
broken	31	25
Door/french window		
insecure	9	13
key	2	
forced	9	12
broken	11	8
	100 (n=380)*	100 (n=954)*

* Excludes attempted burglaries and method not known

Table A.4
Value of goods stolen

	Kent 1979 sample %	*England and Wales 1979 %*
Nil	14	20
Less than £500	55	69
£500 but less than £1000	17	6
More than £1000	14	5

Table A.5.
Type of property stolen

	Kent 1979 sample %	*Thames Valley 1975 full data %*
Cash	28	45
Jewellery/silver	69	14
Cigarettes/alcohol/food	3	13
Radio/stereo/etc.	15	11
Handbag/wallet/purse	8	8
TV	10	6
Clothine	5	4

Appendix B
Drawing the interview samples

The general household sample

Information about the security practices of householders in general was obtained from a random household sample of four representative police sub-divisions of Kent.

Although it would have been operationally simple to obtain a random household sample by quasi-random selection from the rating lists the data would have been more expensive to collect in a predominantly rural area. Consequently a multi-stage sampling design was devised so that the interviews would be clustered. The valuation lists for each district were used as the sampling frame. In the urban areas (namely Sevenoaks, Maidstone and Tonbridge) a simple quasi-random sample was drawn directly from the rating lists. Here, the need to cluster interviews was not as great, and in any case further division of the urban rating lists was not available to enable a two-stage design to be adopted. In the rural areas a two-stage design was employed using parishes as the intermediate framework. The differing sizes and locations of parishes in these three main districts were also taken into account in the sampling design.

The areas so selected were as follows: from the Sevenoaks district, the town of Sevenoaks itself together with the parishes of Otford and Leigh; from the Maidstone district, besides the town, the parishes of Langley, Headcorn, Staplehurst and Thurnham; from Tonbridge and Malling, Tonbridge as the town together with Snodland, East Malling and Hadlow. The rateable values of the selected houses were found not to differ from houses generally.

The interviews with the general household sample were carried out by a local market research interviewing firm. This work was conducted over the same period that the members of the victim sample were being questioned by the authors. Some 491 successful interviews were obtained from the general household sample in the specified time period. Those households from which successful interviews were obtained were found not to differ significantly from the general sample as a whole in terms of rateable value or location.

The victim sample

The most practical way of obtaining a large sample of victims was to use police records.

From information about burglaries in the four sub-divisions in recent years, the areas chosen were expected to yield a sample of some 500 victims, assuming a response rate in the order of 75% in a six-month period of fieldwork. In the event, the incidence of burglary fell in the selected areas in the period of the study. As a result some eight and a half months of interviewing were required to achieve a reliable sample. Some 78% of the victims of burglaries occurring during that period were successfully interviewed, resulting in a sample of 434 victim households.

Appendix C
Annual risk rates

All risk rates have been calculated according to the same procedure. They represent the risk of burglary which a house with specified characteristics faced during 1979. In order to calculate these annual risk rates, the sample data for victims, which comprised the burglaries occurring in an eight and a half month period, have been converted to the known annual burglary total

Table C.1.
Estimated annual risk rates by dwelling type (including flats)

	Victims		*General households*		*Risk*
	Sample	*Total*	*Sample*	*Total*	
Detached	206	430	71	13,160	lin31
Bungalow	67	140	53	9,830	1in70
Farmhouse	4	8	3	560	1in70
Flats	26	55	33	6,120	**1in 111**
Other	2	4	4	740	1 in 186
Semi/short terrace	130	270	304	56,360	1 in 209
Long terrace	4	8	23	4,270	1 in 534

Table C.2.
Estimated annual risk rates by environmental risk of site

	Index Score	*Victims*		*General Households*		*Risk*
		Sample	*Total*	*Sample*	*Total*	
High environmental risk houses	13	20	40	1	185	1 in 5
	12	27	60	3	740	1 in 12
	11	43	90	4	925	lin10
	10	23	50	7	1.480	lin29
	9	23	50	2	555	lin11
	8	30	65	6	1,290	1in20
	7	31	65	14	2.770	**1in** 43
	6	27	60	14	2,770	1 in 46
	5	24	50	23	4.615	lin92
	4	34	70	34	6,645	1in95
	3	33	70	40	7,935	1 in 113
	2	49	100	114	21,780	1 in 218
Low environmental risk houses	1	46	95	116	22.150	1 in 233
	0	3	6	55	11,075	1 in 1,845

for the study area. The sample data for the general household sample, which comprised about a 1/2% sample, have been applied to the total number of households in the study area. The estimated annual risk of burglary is simply the ratio between the estimated total number of houses in the study area and the estimated total number of burgled houses in each category of house type (Table C.1), environmental risk (Table C.2), occupancy pattern (Table C.3) and reward (Table C.4). Because the 'total' figures for each category are only estimates, numbers have been rounded up or down as appropriate.

Table C.3.
Estimated annual risk rates by occupancy patterns

	Victims		General households		Risk
	Sample	Total	Sample	Total	
High degrees of 'unoccupancy'	15	35	5	1,110	1in32
	15	35	5	1,110	1 in 32
	42	90	15	2,965	1in33
	55	115	30	5,930	1 in 52
	53	110	36	7,040	1in64
	51	105	54	10,380	1in99
	58	120	64	12,600	1 in 105
	50	105	70	13,175	1 in 131
	29	60	74	14,455	1 in 241
	28	60	45	8,710	1 in 148
	7	15	10	2,040	1 in 136
	10	20	24	4,635	1 in 231
Low degrees of unoccupancy'	0	0	1	185	_

Table C.4.
Estimated annual risk rates by reward (rateable value)

	Victims		General households		Risk
	Sample	Total	Sample	Total	
High reward	112	235	36	7,075	1in30
	64	135	36	7,075	1in53
	37	80	36	7,075	1in91
	28	60	36	7,075	1 in 120
	28	60	36	7,075	1 in 120
	22	55	36	7,075	1 in 124
	16	35	36	7,075	1 in 208
	32	70	36	7,075	1 in 104
	15	30	36	7,075	1 in 221
	20	40	36	7,075	1 in 168
	18	40	36	7,075	1 in 186
Low reward	16	35	36	7,075	1 in 208

Table C.5.
Average risk rates by areas for 1979

	Households 1971	*Residential burglaries 1979*	*Risk*
England and Wales	16,434,075	252,772	1 in 65
Kent	473,960	4,948	1in96
The study area	91,035	920	lin99
Maidstone	39,920	452	1in88
Sevenoaks	21,075	234	1in90
Tonbridge	13,050	102	1 in 128
Malling	16,990	132	1 in 129

Appendix D
Variables used to construct the index of environmental risk

	X2*
1. Situation - located in the country	69.487
2. Isolated	31.827
3. In a location with few (less than 5) other houses in sight	63.027
4. Road type: major town road	8.380
or village lane	63.732
5. Set at a distance from road in which the house stands	126.652
6. Located on the nearest major road	8.251
7. Housing plot not adjacent to gardens of other houses	35.206
8. Housing plot adjacent to private open space	44.974
9. Access at both sides of the house from front to back on the plot	106.913
10. Not overlooked at the front by other houses	59.226
11. Not overlooked on either side by other houses	29.322
12. Majority of sides of house not visible from public areas	121.911
13. Set at a distance from the nearest house	291.859
14. Road frontage obscured from roadside view	44.549

* the X values shown here reflect the differences in the proportion of the victim sample and of the general household sample which showed each of the fourteen characteristics.

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