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CRIME

'Thinking thief'

Designing out misuse, abuse and 'criminal' aesthetics

While designers take on board, consciously or unconsciously, many factors and issues in their decision-making process, crime is generally perceived as 'beyond' their remit. Should this really be the case and how can the way in which products are designed reduce crime?

Product design has long had a link to crime, although designers or manufacturers rarely acknowledge this. There has been insufficient appreciation of the way in which naïve design solutions can wreak havoc in the real world by providing opportunities for criminals. For example, there is a socket wrench on the market that has a matrix of spring-loaded pins, allowing the device to manipulate any size or shaped nut. This can be extremely useful to the DIY enthusiast or mechanic, but has even more potential for the prepared thief who might regularly want to gain illegal entry by tackling fixings that have been deliberately designed not to be easily opened. In a similar way the wide range of rucksack bags now on offer for us to carry our belongings through towns and cities – as well as for the more traditional country pursuits – rarely offer any security against theft. They are unbelievably designed so that the wearer cannot turn to see or hold the bag fastening and this, of course, simply makes life easier for pickpockets.

There are two primary ways in which designers can influence criminal activity:

- by neglecting to anticipate that 'innocent' objects can be abused or re-appropriated to commit criminal acts
- through positive design intervention to promote crime resistance, consumer satisfaction and to help design out crime.

This article will present three case studies of 'design against crime' (DAC) projects to demonstrate these points. Additionally, we hope to show that considering crime issues can inspire different levels of functionality and creativity in design, as well as offering added value to new product development.

'Innocent' objects

The appropriation of an 'innocent' object occurs when an innovative product inadvertently facilitates a criminal act. Examples of this are the use of cordless drills in house-breaking and car theft, or the use of aerosol paints to create graffiti. In some cases this 'abuse' of products necessitates further active design intervention. The use of aerosol paints by vandals prompted the development of anti-graffiti paints and surfaces. New product development provides many opportunities for 'adaptive,' or inventive criminals to find novel ways of committing crime.[1]

Criminologists such as Ken Pease point to a cyclical process of innovation and obsolescence in the fight against crime, which has been compared to an evolutionary struggle:

'In the language of co-evolution, we adapt without thinking about what our predators will do in response. Clearly, we must start "thinking thief"; anticipating criminals' actions, researching the tools, knowledge and skills available to them now and in the near future and incorporating attack-testing into the design process'.[2]

It is clear that it is not just hardened criminals who are at fault here. Crime is about opportunity. Reducing criminal opportunities helps reduce crime. Evidence suggests that, where an opportunity for gain presents itself, opportunistic individuals will take advantage and crime will inevitably occur. Manufacturers are frequently well aware of users' post-purchase crime experiences with their products, but tend to take little action, often because they argue that crime is the responsibility of the police rather than themselves. Yet everyday products are routinely deemed 'hot' by the police, because they are regularly stolen from cars, homes and individuals across the world (examples include, mobile phones, laptop computers and cameras). Such 'craved' objects[3] rarely come equipped with any built-in anti-theft protection, even though customers, particularly those who have suffered 'repeat victimisation', may be willing to pay a little more for peace of mind. A few manufacturers are starting to recognise that, if theft results in loss of consumer confidence, in the long term this could far outweigh the benefit of short-term repeat purchase profits.

Design against crime interventions

Design against crime intervention is starting to develop, but this is generally to aid protecting information rather than 'things' (pin numbers on credit cards,

iris or fingerprint recognition on entry systems, the biometric fingerprint recognition optical mouse by Bogocop).[4]

An example of 'smart' anti-theft commercial product design can be found in video players from Sharp and Aiwa, which, when unplugged from their supply, are rendered useless. It also reveals the postcode of the original owner when reconnected to the power supply, and thus makes them harder for a thief to sell on.[5] Tagging and surveillance systems are also often fitted into high-risk, high-value objects. An example is the use of car bugs, which are fitted inside classic cars to track their movement. More recently, there have been attempts to provide surveillance and tagging systems that would allow humans, particularly children, to be tracked.[6]

Marking systems, too, have met with some success in helping to detect a perpetrator once a crime has occurred. For example, 'invisible' SmartWater (an infrared marking ink) has met with strong police approval, because it helps identify generic objects that have been stolen.[7]

Closed-circuit television (CCTV), much demonised as a tangible face for the 'big brother', has become more acceptable and inspires some confidence, particularly in the wake of several high-profile cases (e.g. Jamie Bulger's, where its use was of central importance in detecting his murderers).

Other efforts, such as the way in which prisons are designed, are aimed at facilitating the effective incarceration of criminals once they have been caught, as well as the rehabilitation of prisoners. Electronic tagging, for example, which provides the option of house arrest, has achieved much social acceptance.

Anti-stalking project

A recent student project focused on using DAC philosophy and electronic tagging systems as a means of combating stalking offences, in particular using reverse electronic monitoring to record the violation of restraining orders by offenders on parole.

The brief requested that students look specifically at Harassment Section 4

Figure 1   Christina Bilsland's Anti-Stalking Security Kits won second prize in the Design Council and Sheffield Hallam University sponsored 'Design Challenge' design against crime competition, in September 2002.
Kit 1 offers an immediate and deliberately 'low-tech' solution, providing the victim with devices to collate hard evidence, thus enabling them to take an active role against the offender.
Kit 2 addresses more advanced stages of the cycle and includes further support material linked to the issue of reverse tagging system units designed for both victim and stalker
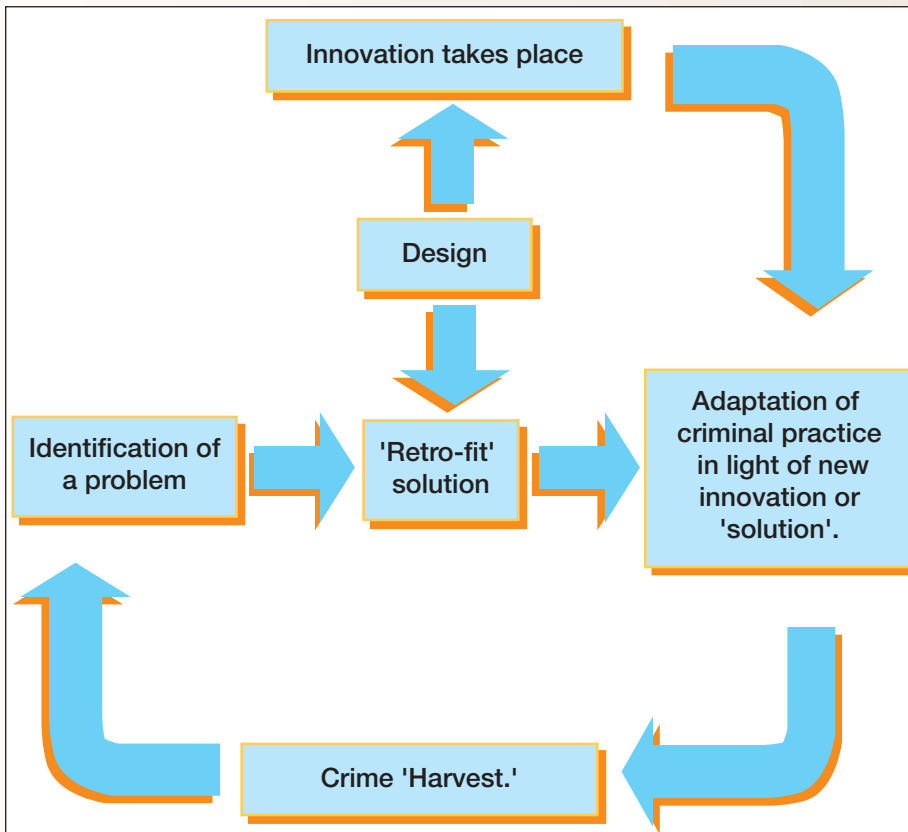
Figure 2 Cyclical process of interaction between design and crime

offences: this section addresses modes of stalking where there is a threat of violence. In practice, the perpetrators of these offences are often on probation and are likely to re-offend. The task was for students to familiarise themselves with the law surrounding this act; to research what existing systems and technologies are in place to aid its enforcement; and ultimately to propose alternative systems that incorporate existing or emerging technologies to improve the way that this sensitive policing issue is handled.

A team of expert speakers gave the students a perspective on the problem; as well as offering tutorial advice.

As part of a probation restraining order tags may be issued that are fixed around the ankle of an individual. Should that individual's movements take them outside a particular radius (usually between 100 m and 400 m), an alarm is sounded. Reverse electronic monitoring permits offenders to leave the house, to go to work, for example,

but, when they enter a designated geographic radius (linked to the home address/es of previous victim/s), an alert is sent to the police. Reverse electronic monitoring clearly places many restrictions upon the victim, who, in also having to carry a tag, risks compromise of their mental and physical freedom.

The designs produced by students working on this project, many of which incorporated tag- and mobile phone-related devices, delivered sensitive design solutions to these problems (Figure 1).

Most DAC interventions are reactive: they only come about at all because of unforeseen situations. The imperative for the anti-stalking response described was generated by the intolerable position faced by victims of stalking, who set up the Network for Surviving Stalking (NSS) as a means of communicating the ordeal that victims face for many years of their lives. In this instance, where the police and courts

seem to struggle and fail to find effective solutions, design seems to offer hope. In this project, feedback from victims offered invaluable information to aid the development process. It may seem obvious to talk to victims, but manufacturers seem frequently to develop electronic monitoring solutions without consulting them.

The most interesting aspect of the project was, for many students, the idea of 'designing' a solution to protect the victim which might be a service or system, rather than the usual (gut response) of a technology-led tagging solution. Using design techniques, and emerging technology, to take into consideration needs and emotional responses of victims, and criminal psychologies, as well as legislative requirements, seemed radical and in direct contravention of how intervention and adaptation of technology usually works.

Figure 2 illustrates a system of intervention and adaptation that lacks an independent catalyst: it suggests that design activity is either a reaction to an identified situation, or is simply a response to technological innovation (both contexts may provide unforeseen opportunities for crime to take place). A 'crime harvest' can occur when criminals benefit from the relatively slow reaction times of government and industry to innovations in the marketplace (mobile phone theft is a good example of this). This model seems to illustrate the commercial issues linked to the design of anti-stalking devices, but fails to show how issues raised by victim abuse and discomfort could systematically be fed into the design process.

Clearly it is not beyond the ability of a designer to take crime into account, but rarely has it been an imperative. What DAC philosophy requires from designers and engineers is an ability to anticipate likely crime opportunities afforded by products and correct them in advance, and/or to consult with independent sources about these problems (victims of crime are also dissatisfied users

whose experience should be important to the re-evaluation of products). Unsurprisingly, listening, anticipating and responding are things that both designers and engineers are very good at, but designing against crime does not fit into the current model of new product development. Yet:

'Designers are trained to anticipate many things: the needs and desires of users, environmental impacts, ergonomics and so on. It is they who are best placed to anticipate the crime consequences of products and services, and to gain the upper hand in the technological race against crime'.[9]

From retro-fit solutions to integrated anti-theft design

Security and 'retro-fit' solutions are often condemned as ugly and cumbersome, because they are attempting to correct something that has been omitted in the first place. There are examples of security being successfully incorporated into products, but they are few and far between.

Automotive design is a good example. Although a long time in coming, improvements were in part due to the publication of car theft indices in the United States, Britain and Australia. These statistics, compiled either by government agencies or by insurance industries, rank models of car according to owners' theft claims within the first three years of ownership, and are adjusted according to cost and frequency of claims. Manufacturers were understandably anxious about the compromised security of their cars becoming public knowledge, but, with the imperative provided by the publication of this data, new cars are now routinely fitted with in-built deterrents: immobilisers, removable hi-fi bezels, wheel locks, alarm systems, engine and body identification systems and GPS location devices. These have all gone a long way towards reducing car theft, vandalism and joy-riding.

Indeed, today, it is vehicles over ten years old that are most at risk.

This is fine if you're a new car owner, less so if you have an older model or travel by bicycle. Despite recent bicycle design innovations by young designers, including RSA winner Angela Seeschaarf (whose design incorporates a pivoting crossbar to secure a bike to a fixed object),[10] and despite the fact that bicycle theft is a major problem in most cities of the world (it is often cited as the reason individuals replace their bikes), it remains unaddressed by most manufacturers.

Ultimately, the challenge of design against crime thinking is not just persuading designers and consumers that 'secure design doesn't have to look criminal', but also to persuade brand manufacturers to invest in innovation as well as the mass production of such anti-theft objects. Intelligent and desirable design can make a difference to crime problems as well as to customer brand loyalty. It can only do so if the price is right, and this of course means that the support of industry is crucial.

A particularly fertile area for exploration for the designer is where security issues have traditionally been eschewed in favour of styling, and where volume crime is significant. We will now focus on two postgraduate design projects that have attempted to create solutions to address volume crimes such as 'theft person' (pick-pocketing and bag theft) and domestic burglary. The discussion looks at the experience of taking these design concepts to the commercial marketplace.

Anti-theft bag project

'Trying to pass the problem of crime reduction on to designers is a derogation of responsibilities that lie elsewhere.' [11]

The above statement seemed to ignore the potential offered through design, but also presented a challenge, which was explored through a DAC project using bag design as an example of a form

that invites rather than inhibits crime. The subject was seen as universal and having international interest. It was also suitably benign in terms of a 'moral' debate. Almost everyone has experienced theft of, or from, his or her bag, or knows someone who has had such an experience. Research suggests that this type of theft is largely opportunistic, easily deterred, and very unlikely to be shifted to another type of crime, such as assault or mugging. Students were given access to visual research material, later published as *In the Bag*, which was based on assessment of evidence from various sources linked to the British Transport Police, the Metropolitan Police and the Home Office, as well as from surveying new security products in the popular marketplace. Students were offered a classification of the types of theft as follows:

1 'dipping' – removal of articles from a bag without the owner's awareness

2 'slashing' – removal of articles from a bag with or without the owner's awareness by cutting the fabric of the bag

3 'lifting' – removal of the bag and contents without the owner's awareness

4 'snatching' – removal of the bag and contents by snatching it away from the owner's grasp.

Students were encouraged not to limit their perception of the concept of 'bag' in the context of dominant cultural interpretations of its appearance. The bag was to be considered a device, or system, for storing, transporting, protecting and providing access to, specific objects in specific environments. In this way, the project centred on design for a system of use, but anticipated associated systems of misuse and abuse (potential theft). Field research in crowded shopping areas and public transport systems highlighted the risks and helped students put themselves in the position

of a potential thief on the lookout for opportunities. Representatives from the Metropolitan Police, the British Transport Police, and the Home Office were also invited into the studios to give first-hand advice and criticism as work progressed. Taking a 'sideways' look at products from the point of view of a non-typical or undesirable user, such as an adaptive criminal, gave great insight into ways of tackling crime through design. The design outcomes of this project were extremely successful and indicate the potential for design intervention in other fields.

Many of the outcomes offered real design alternatives to contemporary bag design, and focused on the use of new materials or technology transfer. Functional designs emerged and we felt they could be implemented by manufacturers with little extra cost and also offered great benefit (as well as protection) for their users, by making pockets for unknowing (criminal)

Figure 3 The zip Zip ladies handbag

Figure 4 The Insider unisex shoulder bag

Figure 5 The Karysafe Screamer bag
Photo courtesy of T. Willcocks

abusers harder to open and straps and surfaces impossible to slash. Other designs adopted precepts from the political and artistic movement 'situationism', and created bags for situations, which were not exactly commercial in orientation but rather served as comment on the issue of bag theft. Many designers were assisted in the realisation of their concepts through the help of military and emergency service bag specialists H. Fine & Co., who were persuaded to participate in a civilian project. Just three of the design solutions are summarised below.

zip Zip
by Georg Hansis, student
This small ladies' handbag (Figure 3) was made entirely of 'invisible' type zips, sewn together according to a simple pattern. The resulting bag would appear to have a multitude of entry points. In reality, there are only two zips that work. These may be configured by the owner, and changed as often as necessary. The inspiration came from a 'combination' type of padlock, where security is afforded by the fact that only the owner knows the correct number. This bag is limited in application, since it is so small, but is a good illustration of the interesting variety of work that can be produced when applying an unexpected impetus to the design process.

Insider
by Sondre Ager-Wick, student
A unisex shoulder bag (Figure 4) for small, valuable items, this bag has a hard case, which is slash- and cut-proof. Materials research was extremely important. The opening to the bag is concealed from view, and accessible only to the owner, a feature that the designers from Vexed Generation later licensed and adapted the design for the Karrysafe *Screamer* (Figure 5), a bag that offers solutions to more than one type of theft and whose alarm starts 'screaming' if the owner is subjected to a direct attack on the bag, and which also features a 'pull off' strap.

Vault case
by Andrew Fowkes, visiting tutor
This briefcase-sized bag (Figure 6) is suitable for holding a notebook computer. The primary issue being addressed here is 'lifting': the removal of the bag without the owner's awareness, in a semi-public space such as a bar, restaurant or train, where the bag may be left unattended for short periods. A flexible leash was designed to anchor the bag to an immovable object. This affords the owner an extra degree of peace of mind whilst travelling. This feature was licensed by designers from Vexed Generation and extended by including a combination lock when they were developing a range of design
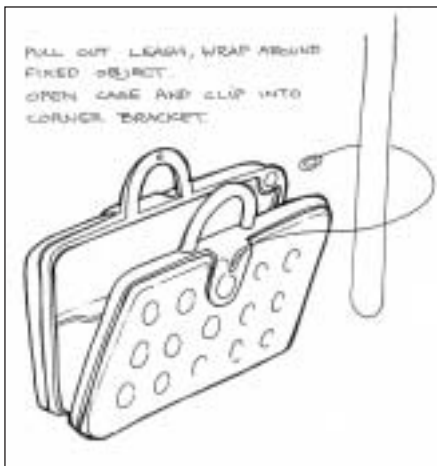
Figure 6 This Vault Case can hold a notebook computer

features for the Karrysafe label. See the *Scroll Top Backpack* (Figure 7).

The outcomes of this project received much exposure in the press and were exhibited at the Design Museum, London and at international trade exhibitions. This intervention marked a brave attempt by the Design Council to promote Design Against Crime as a young British design initiative, although it was clear that maximum success was likely to be achieved only if the commercial efficacy of anti-theft design could be demonstrated in the marketplace and strong business relationships were formed. Yet many of the manufacturers

Figure 7 The Scroll Top Backpack

we approached did not feel crime reduction was the responsibility of their product range, and so we found ourselves in a similar situation to that faced by James Dyson when he was forced to make his own vacuum cleaner. But would we be as effective?

With funding from by the Design Council and matched by The London Institute/CSM, the Karrysafe range of anti-theft bags was subsequently developed (see www.karrysafe.com), and included crime prevention information in the 'advice' section.

Anti-burglary project

A further project took burglary as its focus. In consultation with the door manufacturer Leaderflush, and Secured By Design (SBD) (an architectural initiative created by the Association of Chief Police Officers), students were briefed to investigate some of the current methods of use, abuse, and other perpetrator techniques linked to burglary and related crimes. By considering this interaction in detail, the design process could be informed and influenced accordingly. Initial presentations by experts helped students understand and engage with the issues surrounding such a complicated set of problems. All speakers were able to discuss with students in detail the problems associated with domestic burglary. Students were also provided with useful data about SBD's focus on natural surveillance and risk assessment strategies.

Many of the designs and concepts that were developed in response saw students deconstructing traditional notions of both burglary and of security, and taking a high technology approach, embracing biometrics, GPS monitoring and other emerging technologies. They also undertook their own primary contextual and technological research, at the earliest stages of the design process, and were able to locate approaches that were best able to address the crime situation they had chosen. For example, through looking at

properties of specified materials and technologies, both the product's integrity and its effectiveness in terms of security benefited. Models and prototypes were constructed and are available for further review on the course website.[12] Some samples of the outcomes follow here and have been selected primarily to show a diverse range of approaches:

Security blind
Yueyu Ren

This security blind won first prize in the Design Council and Sheffield Hallam University sponsored 'Design Challenge' design against crime competition, 2002. It was conceived as an alternative to window bars and 'crime mesh'. At first glance the blind looks like an ordinary window hanging. However, closer inspection reveals the security bars hidden within the folds of the material, providing protection from crime with a pleasing aesthetic edge. When a number of these blinds are used together they form a system, intended for installation in new building developments. The bottom bar on each blind forms a magnetic seal with the frame. Once all the blinds in the system are down they can be locked with the touch of a single button (Figure 8).

Mail Room
Andrea Young

Mail Room is an architectural security solution, which concentrates on the letterbox and door area of the home. The arrival of Internet shopping has seen an increase in parcel deliveries to the average household – particularly during working hours, when houses are more likely to be empty. There have also been widely reported, and seemingly increasing, numbers of crimes committed through doors and letterboxes. Mail Room takes its inspiration from the valves and airlocks seen on submarines and in science fiction spaceships. Admittance is via a smartcard reader connected to the Internet: every time an order is placed, the system makes a note to expect, and admit, the bearer of that package. See Figure 9.

Figure 8 Security blind

Security without walls
John Wischhusen

Protecting possessions inside the home is relatively easy, but when belongings are placed in an exterior environment there is little to protect them. This system was designed specifically for securing possessions while camping but it could also be used in other similar outdoor public situations. The system is low-tech and consists of a locking peg, a slash-proof bag, a cable and padlock. The peg screws into the ground and then is locked in place; larger items are locked to the peg with the cable and padlock and the cut-proof bag is used to secure smaller items (Figure 10).

Figure 9 Mail Room

demise. Indeed, three points emerge as being particularly significant, and should encourage both designers and engineers to engage with the many product territories linked to crime prevention.

First, anti-theft designs draw attention to the potential of design innovation in territories that lend well to stylish design, engaging with concepts linked to security issues that have traditionally been viewed as 'unsexy.'

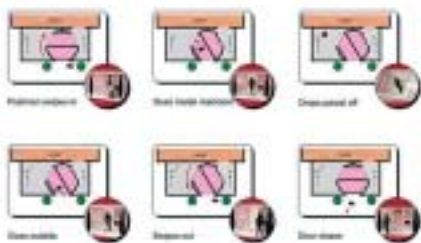Secondly, these designs show that designers are extremely adept at

Figure 10 Security without Walls

Conclusion

Designers have more in common with criminals than might be expected. Both groups tend towards a higher than average incidence of dyslexia, the learning disorder marked by enhanced visual skills alongside the impairment of the ability to read.[13] This may explain why young designers are good at the 'sideways' thinking mentioned previously, as well as understanding the criminal mind, even if their response to crime is not parasitic but moves in the creative direction, aimed at improving society rather than contributing to its

'sideways' thinking, and can produce solid and pragmatic results in the area of anti-crime research. The ability to deconstruct by thinking illegitimate thoughts about legitimate work, to 'think thief', in order to generate effective design solutions, is not enough on its own. Consequently many good design prototypes never make it to the mass market.

Our third and final point concerns the value of partnerships and commercial collaborations. Once appropriate crime information has been located by specialist criminologists and translated

by designers, the development of an appropriate partnership, contributing to the technological and engineering issues at hand, becomes a major priority. Whilst projects such as these have huge potential as a learning tool, their wider implementation has to be the ultimate goal, and success will be determined by the quality of the partnerships involved.

Experience has shown that high-quality and effective partnerships are hard to find. At present, there is little support for the aims of 'design against crime' amongst manufacturers, even though, in a public survey, some argued that they would pay more for products that designed out crime and their potential status as victims of crime. Market leaders have not taken heed of the movement being led by design. They appear to be either waiting for legislation to force them to comply (the mobile phone industry's reluctance to acknowledge the relationship between criminal activity and their products is a prime example), or waiting to see whether the risk-taking end of the market (designer–makers and small brand manufacturers) is able to make a success through the incorporation of DAC as 'added value'. Whilst commerce and morality do not always go hand in hand, the current situation is particularly sad, as its effects are so prominent in the news and can be viewed from the quality of lived experience on offer in our cities, where fear of crime is commonplace. Having said that, there is hope in the form of the EPSRC, whose recent announcement of investment in crime prevention research funding could provide a real catalyst and site of partnerships between engineering, design and manufacturing brands, that would ultimately benefit consumers and citizens. Certainly, the police need all the help they can get to crack crime. They admit even though in many categories crime is currently falling, they do not have the manpower resources to follow up or find perpetrators to many volume crimes

such as burglary. In the long term it is likely that research investment can make a difference. As well as putting design against crime on the map as an important and credible force for social change, technological innovations coupled with smart user design have the potential to make some crimes, and some criminals, obsolete, and to lead us towards a new kind of (anti-) crime wave. But before that wave peaks, some of us will have to re-tune our criminal lack of understanding and adjust our frequencies to receive the message.

Notes

1 Ekblom, Paul, 'Less crime, by design', Royal Society of Arts, London, 11 October 2000: 'It's now fairly widely acknowledged that crime prevention is a kind of arms race, with adaptive, and sometimes organised, offenders who innovate, exploit social and technical change and enjoy the obsolescence and irrelevance of familiar crime prevention methods … . We can learn three kinds of lessons from these struggles: engineering lessons – trade-offs between weight and mobility, design details, materials; entirely new design against crime strategies; and high-level ideas on how to run, and avoid, arms races'.

2 Pease, Ken, 'Cracking crime through design', London, Design Council, 2001 (p.27).

3 CRAVED is an acronym used by the Home Office to describe the characteristics of 'hot' products, which are intrinsically **c**oncealable, **r**emovable, **a**vailable, **v**aluable, **e**njoyable and **d**isposable. See discussion of hot products (taken from R. Clarke) on CD-ROM, by Lorraine Gamman *et al.*, *In The Bag – Get Smart Quick about Bag Theft and Pick-Pocketing, A Design Resource*, London, Central Saint Martins, 2001, distributed via Crime Reduction College.

4 See discussion 'The good, the bad

and the ugly', *In The Bag* (op. cit.).

5 See discussion of Sharp Aiwa Video in 'The good' section, *In The Bag* (op. cit.).

6 http://www.carbug.com and http://www.kidbug.com

7 http://www.smartwater.com

8 Run with the BA (Hons) Product Design at CSM.

9 Pease, Ken, (p.27).

10 See http://www.rsa-design.net/ for details on this and other competition winners.

11 Aldersly-Williams, Hugh, 'Stealing beauty', *Guardian* Space supplement, 18 May, 2000.

12 www.maindustrialdesign.com

13 Graves, Jane, 'The mask and the gaze: Voyeurism, Silvertown and the Eastend', unpublished paper CSM Library, 2000.

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