

Chapter 14

Legal responsibility



Legal responsibility

14.1 We concluded in Chapter 12 that the results of research in behavioural genetics do not warrant a substantial revision of our current conceptions of human action and moral responsibility. However, one area in which the research may have more immediate and more persuasive implications is in the attribution of legal responsibility and the role of punishment. In this chapter, we consider the status of biological explanations of behaviour in the context of criminal law and the possible impact of behavioural genetics on the legal system. In the following chapter we consider issues that also concern the law, namely employment and insurance, but this chapter focuses on criminal law and responsibility for criminal behaviour.

The history of biological explanations of human behaviour in law

14.2 Interest in biological explanations of criminal behaviour is by no means new. In the nineteenth century the Italian criminologist, Cesare Lombroso, wrote extensively on the association between crime and physiognomy, drawing attention to what he saw as the typical facial and cranial features of the criminal.¹ Interest in Lombrosan criminology waned, but this movement expressed a widespread and persistent enthusiasm for identifying a physical explanation of crime. It is this same interest which prompted research in the mid-twentieth century into the distribution of body types amongst juvenile offenders, and, arguably, which prompts contemporary interest in scientific explanations of antisocial behaviour, whether the preferred theory be neurological, dietary or genetic. Although such interest is understandable, it is important that a desire for a simple, intelligible cause of a serious social problem should not obscure the need for scientific rigour in scrutinising the claims of such theories. Crime is a complex phenomenon, and interpretations of crime that focus on one aetiological factor are likely to be misleading. Such approaches are also open to the criticism that they represent the 'quick fix' response, thereby obscuring the need to address other, potentially more expensive and uncomfortable solutions.

14.3 Some commentators have suggested that the search for genes that influence crime or antisocial behaviour is fundamentally misconceived, since crime is a socially constructed phenomenon. This criticism has also been levelled at research in behavioural genetics into other traits, including intelligence and personality characteristics, but it is particularly pertinent in the case of crime and antisocial behaviour. Nikolas Rose has noted that biological criminologists are:

'quick to acknowledge that crime as such does not exist; that lawbreaking acts are heterogenous; that crime is culturally and historically variable; that infraction of law is common; that those arrested, charged and convicted are not representative of those who break the law but a skewed sample produced through all sorts of social processes.'²

Consequently, it makes little sense to talk of genes for crime, or even genes for particular types of antisocial conduct, such as robbery or physical assault. Researchers in behavioural genetics do not deny this. Their research tends to focus on more narrowly defined and

¹ Lombroso, C. (1876). *L'Uomo Delinquente*. Milan: Horpli.

² Rose, N. (2000). The biology of culpability: pathological identity and crime control in a biological culture. *Theoretical Criminology* 4, 5–34.

measurable traits such as impulsivity, aggressiveness and psychiatric disorders, such as conduct disorder and Attention Deficit Hyperactivity Disorder (ADHD). Nonetheless, it may be the case that our concepts of crime and antisocial behaviour are so complex and socially and culturally influenced that they will simply not be amenable to scientific investigation.

14.4 In this chapter, we review biological explanations of crime and antisocial behaviour that have been offered in recent history and consider the implications of research in behavioural genetics for our legal system. In particular, we consider three separate areas of criminal justice which may be affected by advances in research in behavioural genetics:

- *Exculpation*: Whether genetic information about a behavioural trait should affect our attributions of legal responsibility, that is, as an exculpatory factor.
- *Sentencing*: Whether genetic information about a behavioural trait should affect the way in which we sentence and treat convicted offenders.
- *Prediction*: Whether genetic information should be used to predict the future occurrence of antisocial behaviour.

Previous genetic and physiological explanations of crime

XYY males

14.5 In 1965 a paper was published based on research involving almost 200 males who had been committed to the State Hospital at Carstairs in Scotland.³ Seven of the men were found to have an extra Y chromosome, a much higher rate than was thought to be the case in the general population. The research raised the possibility that this genetic abnormality could be related to the aggressive behaviour of the inmates. Further research showed that XYY males were more likely to be taller than average and of low intelligence, but failed to provide conclusive evidence about a link to aggressive or violent behaviour.⁴ In 1976 a paper was published which concluded that XYY males were more likely to be imprisoned, but that this was due to their low intelligence and low socioeconomic status which placed them at higher risk of being caught.⁵ The current state of opinion on the XYY issue is that there is insufficient evidence to establish any firm link between the particular genotype and an increased risk of aggressive behaviour, although there does appear to be an increased risk of offending.

14.6 There are no legal cases in the UK in which a genetic diagnosis of XYY has been used to establish a defence. At least five major US cases attempted to use the fact that the accused was XYY in defence but none was successful. In one, *State v Roberts* (1976), the judge stated that 'presently available medical evidence is unable to establish a reasonably certain causal connection between the XYY defect and criminal conduct'.⁶ We discuss the issue of the quality of scientific evidence that is admissible in the legal system in paragraph 14.23.

³ Jacobs, P. A., Brunton, M., Melville, M. M., Brittain, R. P. & McClermont, W. F. (1965). Aggressive behaviour, mental subnormality and the XYY male. *Nature* **208**, 1351–2.

⁴ Baker, D., Telfer M. A., Richardson, C. E. & Clark, G. R. (1970). Chromosome errors in men with antisocial behavior: comparison of selected men with 'Klinefelter's syndrome' and XYY chromosome pattern. *JAMA* **214**, 869–78; Jacobs, P. A., Price, W. H., Richmond, S. & Ratcliff, B. A. W. (1971). Chromosome surveys in penal institutions and approved schools. *J. Med. Genet.* **8**, 49–58; Schiavo, R. *et al.* (1984), Sex, chromosome anomalies, hormones and aggressivity. *Arch. Gen. Psychiatry* **4**, 93–9.

⁵ Witkin, H. A. *et al.* (1976). XYY and XXY men: criminality and aggression. *Science* **193**, 547–55.

⁶ *State v Roberts* (1976). 14 Wash. App. 727, 544 P.2d 754.

In the case of XYY males, it is highly unlikely that the syndrome will acquire legal significance because of the difficulty in showing that it is directly linked to forms of antisocial behaviour.

- 14.7 It is perhaps worth making the observation here that having just a single Y chromosome is highly correlated with criminal behaviour: the vast majority of the prison population in the UK are men. This correlation does not seem to generate the same concerns, in that 'being male' is not suggested as something that absolves individuals from responsibility for criminal acts, nor is it taken into account as a mitigating factor in sentencing. We consider the relevance of the frequency of a genetic trait or predisposition in the population with regard to predicting behaviour in paragraph 14.38.

Syndromes

- 14.8 Numerous syndromes have been claimed to weaken or eliminate moral responsibility in cases where the accused person pleads not guilty by reason of insanity. These include syndromes thought to arise as the result of an environmental trauma, for example battered spouse syndrome, battered child syndrome and post-traumatic stress disorder, and those thought to arise as the result of a biological condition, such as premenstrual syndrome and postnatal depression. In these 'biological syndromes', the argument is that chemical or hormonal changes in the body affected the individual's capacity to control their actions to such a degree that they cannot truly be said to be responsible for them. The defence of premenstrual syndrome has been successful in Britain but is now rarely used because there has been a subsequent increase in measures to improve early detection and prevention of the condition.

Genetics: Huntington's disease

- 14.9 Huntington's disease, a single gene disorder that may be associated in some cases with aggressive behaviour, has obvious implications for criminal law. A person with this disorder may behave irrationally and may carry out assaults with no apparent motive.⁷ Such behaviour is, of course, more easily seen as a concomitant of illness than is the case with asymptomatic genetic conditions, and is therefore more likely to be treated by the courts as an exculpatory factor. Prosecutorial discretion often prevents the bringing of charges against a person suffering from a diagnosed and obvious condition, such as dementia, and it is for this reason that legal precedents do not articulate the implications for criminal guilt of such conditions. The important point to note, however, is that it is not the genetic mutation which is regarded as exculpatory here but its impact on the brain. If a person suffering from Huntington's disease were to be acquitted of a criminal charge relating to aggressive behaviour produced by the condition, then this would be on psychiatric rather than on genetic grounds.

Genetics: Monoamine oxidase A (MAOA) deficiency

- 14.10 As noted in Chapter 9, there has been very little research on individual genes that might influence antisocial behaviour or criminal activity, with the exception of the family whose

⁷ Mild psychotic and behavioural problems can appear some years before the onset of the disease. A study by Danish researchers in 1998 found increased prevalence of criminal behaviour in men with the genetic mutation that causes Huntington's disease and concluded that this was linked to the personality changes that are often seen in people with the condition (Jensen, P., Fenger, K., Bolwig, T. G. & Sorensen, S.A. (1998). Crime in Huntington's disease: a study of registered offences among patients, relatives and controls. *J. Neurol. Neurosurg. Psychiatry*. **65**, 467-71).

male members were deficient in a protein called MAOA. These males were found to be more likely to have been convicted of aggressive crimes such as rape and arson. Since this finding is currently confined to members of one family, it seems unlikely that it will have an impact in the legal system.⁸ However, as we noted in paragraph 9.25, one recent study has suggested that the MAOA genotype may be a relatively effective predictor of antisocial behaviour in children who are also maltreated.

Genetic information as an exculpatory factor

- 14.11 If an association were to be established between the possession of a particular genetic variant and antisocial behaviour of some sort, for example, aggressive acts, it might be suggested that this information could be used not only in an attempt to explain crime, but also to excuse, or absolve from responsibility, those charged with criminal offences. This possibility raises a challenge to the notions of legal responsibility which underlie our system of criminal justice. As we observed in Chapter 12, if it were the case that responsibility for our acts is a matter of 'genetic luck', antisocial behaviour would cease to be a matter of personal responsibility as it would depend on factors beyond the control of the individual.
- 14.12 While it is unlikely that genetic explanations of behaviour will change the fundamental assumptions on which criminal justice relies, they could nonetheless have some effect. We should recall that, in the past, new scientific insights have been resisted by the courts, only to be fully acknowledged with the passage of time. One example here is the technique of DNA fingerprinting. Another is the readier acceptance of psychiatric defences in a number of West European countries, which accompanied the birth and development of modern psychiatry in the second half of the nineteenth century. This latter example, however, can also serve to highlight the difficulties that may arise when evidence from a new discipline is incorporated into the legal system. The disinclination of the courts to accept particular medical or scientific explanations should not be assumed. Equally, nor should their capacity for assessing the validity of novel scientific claims be overestimated.
- 14.13 Traditionally, the criminal law bases its notions of responsibility on the assumption that every adult is answerable for his or her acts, and is hostile to ideas which challenge the existence of free will and individual responsibility. The law endorses the idea of personal responsibility that lies behind the way in which we conduct our everyday lives in society, since the very idea of punishment and retribution makes little sense unless free will is assumed. 'Very simply, the law treats man's conduct as autonomous and willed, not because it is, but because it is desirable to proceed as if it were.'⁹
- 14.14 At the core of criminal responsibility is the notion that human action consists of an act and an accompanying mental state, usually an intention on the part of the individual. With the exception of offences of strict liability (regulatory offences in which the state of mind of the accused has no bearing on liability), the mental element behind action is of great importance in the law. The criminal law is not usually concerned with motive, at least for the purposes of allocating responsibility. What matters is the attitude of the individual towards the act itself. If an act is intentional, or performed recklessly or with

⁸ In *Mobley v State* (1995). 265 Ga. 292, 455 S.E. 2d 81 the defence lawyers of a man accused of murder attempted to have their client tested for MAOA deficiency. However, the court refused to allow such a test, saying that 'the theory of genetic connection ... is not at a level of scientific acceptance that would justify its admission'. The request was made as a potential mitigating factor, not an exculpatory factor, in an attempt to avoid the death penalty.

⁹ Packer, H. (1968). *The Limits of the Criminal Sanction*. Stanford: Stanford University Press.

culpable negligence, then the individual may be held responsible for it unless a valid defence is identified and accepted. In most cases, then, the law is concerned with choice. We make free choices with regard to our actions, and we then answer for these choices as free individuals.

- 14.15 Not all actions which infringe the criminal law will attract liability. Actions performed without a relevant accompanying mental state, such as acts performed in a state of unconsciousness, for example (automatic acts), will not result in liability. Defences are also available to those who are affected by a mental disorder or syndrome. It is this latter category of defences that is relevant to the debate regarding behavioural genetics.
- 14.16 An exponent of a 'genetic defence' might argue that the reason why a person has committed the criminal offence in question is that a genetic variant has either caused the behaviour in an immediate sense (in the same way as an electrical stimulus may produce a muscular reaction), or because the genetic variant has contributed to the development of a personality, or, in moral terms, a character (or set of dispositions) which are manifested in certain forms of action. These are distinct claims, and it is the second, more common line of argument which we shall address here. This claim maintains that because genes play a role in the emergence of dispositions, and these dispositions in due course play a role in the performance of acts, our acts are not just the product of whatever choices we have made, but are produced by factors which we did not choose and for which we are not therefore responsible. We have already discussed this issue in its philosophical context in Chapter 12; our concern here is to consider how such an argument might be integrated with existing theories of criminal defence.
- 14.17 An obvious analogy can be made to personality disorder, since a personality disorder and the possession of a genetic variant predisposing to antisocial conduct (if such characteristics were to be identifiable) might be viewed as similar conditions. However, it must be remembered that personality disorders are psychiatric conditions which cannot be said to fall within the range of normal variation. A predisposition to behave aggressively or impulsively does not necessarily entail that an individual has a disorder. We recall the normal distribution curve explained in Chapter 3 (Figure 3.3): it is axiomatic that with such a distribution half the population will have an above-average score for a particular trait. Moreover, the point at which the normal range becomes an extreme score or a disorder is never clear. Thus, genetic influences on traits such as aggression or impulsivity may have implications not just for those with psychiatric disorders, but for other individuals accused of antisocial behaviour.
- 14.18 With regard to individuals with personality disorders and those thought to have an increased risk of antisocial behaviour as a result of a genetic variant, there is no question of individual responsibility for the occurrence of the condition or disposition. In both cases, the condition is a background against which a decision to act in a particular way is made. The decision to ignore the condition as a possible exculpatory factor might therefore be reached on the same basis. A person who has a psychopathic personality disorder may claim that his or her antisocial actions are the product of a condition for which he or she is not responsible. The psychopath does not choose to be a psychopath. Whatever view is taken of the aetiology of this condition, the psychopathic personality is probably shaped at an early age and it is generally not regarded as something which the individual is able to change. The psychopath cannot therefore be blamed for being a psychopath, even if there is room for blame in respect of his or her conduct. However, in

practice, we do generally regard persons with a psychopathic personality disorder as being responsible for their actions, even if we may accept that it is more difficult for them to comply with social and moral restraints. Certainly, as far as the law is concerned, in spite of some cases in which psychopathic personality disorder has been admitted as grounds for a plea of diminished responsibility, the preferred approach of the courts is to treat such individuals as ordinary offenders.

14.19 The psychopath is considered to be responsible for legal purposes, because to hold otherwise would undermine the assumptions about responsibility which need to be made in society. We have noted above that whatever the claims of determinism may be in the moral domain, we order our social and moral lives on an assumption that individual responsibility for actions does exist. Quite apart from these grounds, pragmatic considerations point to a need to limit exculpatory conditions. If the scope of available excuses, whether genetic or environmental, is too broad, then it would be only too easy for a defendant in a criminal trial to claim that the behaviour was not his or her own but was determined by past experiences and influences. The impracticality of such an approach is self-evident, and would seriously compromise our social arrangements. It would remove, in effect, the need to make any moral effort to comply with society's rules; everything would be potentially excusable. This potential weakening of the justice system is a vital consideration in examining whether genetic influences on behaviour in the normal range ought to be taken into account in attributing responsibility.

14.20 Regardless of whether a predisposition is derived from genetic or non-genetic influences, the crucial question is what is the status of that predisposition in the legal context? One response might be that the relevant question to ask of a person with an alleged genetic disposition to a trait is 'was the predisposition so strong he or she could not resist it?' This raises immediate problems concerning what constitutes an irresistible predisposition and how such a thing could be measured. More fundamentally, it does not seem plausible that genetic influences on antisocial behavioural traits will generate irresistible predispositions. Rather, genetic and other factors may contribute to our characters in ways that make certain behaviours more or less likely, rather than certain. If this is so, what should we say about a genetic predisposition to impulsivity which makes it more difficult for a particular individual to avoid acting aggressively than it is for other people? In such a case, resistance to the predisposition would not be impossible, just considerably more difficult than average. Should this be taken into account when blaming an individual for their behaviour? It has been argued by various philosophers that those to whom virtuous behaviour comes naturally are less deserving of praise than those for whom such behaviour requires great self-restraint and effort. Might a similar argument be made to take account of the greater effort required by the 'less naturally virtuous' individual's struggle against his or her character traits? The question of how difficult it is for us to control our behaviour as a result of genetic influences will be important in the context of the sentencing and treatment of offenders, which we discuss in paragraphs 14.26-14.33 below.

14.21 Characteristics that are influenced by genetic variation and are within the range of normal variation cannot be considered to amount to an illness or, indeed, an abnormality. This would suggest that they are outside the scope of the existing legal excuses of insanity or diminished responsibility. This is quite consistent with the notion that criminal law does not pay attention to the range of abilities or characteristics which defendants may have, outside the very limited defence of provocation. Irrascibility or inability to resist temptation are not characteristics which the courts would take into account in determining

responsibility. This is because the criminal law relies on a single standard of conduct which is expected of all. To allow individual characteristics and capacities to affect responsibility would destabilise the criminal justice system and would be regarded as unacceptable and unfair by the public. This therefore precludes a role in responsibility for any genetically-associated characteristic within the normal range.

- 14.22 Could it be argued that a genetic predisposition to antisocial behaviour ought to be defined as a disorder, and therefore, that it should act to lessen responsibility in the same way that some psychiatric disorders are recognised as entailing diminished responsibility? This would be an example of medicalisation, which we discussed in paragraphs 13.13–13.24. If a particular genotype has not manifested itself in symptoms of illness, then in ordinary language we would probably not describe the person as being ill, even if we were to say that they were affected by a particular condition. This would therefore act against any attempt to bring the possession of a particular genotype into the category of an exculpatory illness. To say that a person is ill because he or she has a particular genetic make-up which may be associated with antisocial behaviour is counter-intuitive. Only when the genotype has manifested itself symptomatically and given rise to identifiable physical pathology or psychiatric illness will we say that the person is ill and therefore potentially not responsible for his or her conduct. For this reason, genetic factors will only currently be relevant in so far as they are productive of other identifiable conditions: in themselves they do not amount to the excusing condition. For example, if the responsibility of a schizophrenic person were to be at issue, it would make no difference whether the illness were to be attributed to a genetic factor or to an environmental factor. The individual would be excused on the grounds of the illness, not its cause.
- 14.23 A further problem with the use of information about genetic variants that influence behaviour, at least for the foreseeable future, is the degree to which a causal link can be established between a particular genetic trait and a particular criminal act. In the US, it was previously the case that scientific, medical or psychiatric evidence had to be generally accepted within the relevant academic community. Following a landmark case in 1993, the position in the US is now that evidence must be relevant and reliable, but does not have to be generally accepted. Of course in practice it seems likely that relevant and reliable evidence will often also be generally accepted.¹⁰ In Britain, the position is similar, in that relevance and reliability are the key criteria by which evidence is assessed for admissibility.¹¹ It seems likely that behavioural genetics, if it identifies genetic influences on behaviour, will be able to do no more than offer evidence of correlations of varying strengths between particular genetic variants and broad categories of antisocial behaviour. It is unlikely that such correlations would be viewed by the legal system as sufficiently reliable to warrant excusing an offender.
- 14.24 **We conclude that research in behavioural genetics does not pose a fundamental challenge to our notions of responsibility as they are applied in the legal context. We consider that genetic variants in the normal range are unlikely to be considered an excuse for legal purposes, at least for the foreseeable future. They fall outside the scope of the defences of insanity and diminished responsibility and cannot be said to absolve individuals from responsibility for their actions.**

¹⁰ *Daubert v Merrell Dow Pharmaceuticals Inc.* (1993). 509 US 579.

¹¹ See, for example, *R v Robb*. (1991). 93 Cr App Rep 161 at 166; *R v Mohan*. (1994). 2 SCR 9.

14.25 If progress in behavioural genetics were to be such that close and clearly identifiable associations between particular genetic variants and particular forms of antisocial acts were to be demonstrated, there would be a case for a re-examination of the legal implications. It might be that the concept of diminished responsibility, for example, could be expanded to embrace such conditions, perhaps by redefining views of illness. If this possibility were to be considered, thought would have to be given to the potential dangers of unwarranted over-reliance on genetic information and the consequences of reducing responsibility for our actions.

Sentencing and treatment of offenders

14.26 Responsibility is one thing; the question of what to do with the convicted offender is another. Future insights of behavioural genetics might play a greater role in the punishment of offenders. At this stage of the criminal process it is possible to take a much broader view of the background of an offence and the person who commits it. Currently, defence lawyers submit a wide range of information about the offender and his or her background and circumstances to the judge, who can choose whether or not to take it into account in determining the appropriate sentence (within the existing constraints on sentencing). Other factors, such as public safety, are also important considerations. There are all sorts of features of individuals for which a correlation with antisocial and criminal behaviour has been suggested. For example, in the context of juvenile delinquency, reported risk factors include poverty, being born to a teenage mother, being reared in a family with at least four children, being adopted, having divorced parents and having an aggressive father.¹²

14.27 The mechanisms by which such environmental factors influence susceptibility to antisocial behaviour are not well understood, but evidence of such correlations exists, and may influence a judge's sentencing decision (although there is an increasing number of crimes for which sentencing constraints exist, such as mandatory life sentences for murder, automatic life sentences for serious repeat crimes and minimum sentences in other areas such as burglary and drug trafficking). Judges are permitted to take into account, when sentencing, information about the circumstances of an offence and any aggravating and mitigating factors that may be relevant. Relevant circumstances can include information about the age and vulnerability of the victim, the offender's previous criminal record, the extent to which the crime was premeditated, and the offender's motive. Mitigating factors can be taken into account to reflect an individual's enhanced or diminished culpability for a crime, or because the judge believes that a milder sentence may be sufficient to discourage the offender from committing further crimes. An offender may be judged to have diminished culpability because of provocation or temptation, mental disorder, stress or the effect of medicines, narcotics or alcohol. Judges can also take into account evidence that an offender is of good character, which is usually determined on the basis of a lack of previous convictions.¹³ It is less clear to what extent judges acknowledge the influence of environmental factors that are statistically correlated with an increased likelihood of antisocial behaviour, such as poverty, family size and so on (see paragraph 14.26).

¹² See Rutter, M., Giller, H. & Hagell, A. (1998). *Antisocial Behaviour by Young People*. Cambridge: Cambridge University Press, for a comprehensive summary of those risk factors relating to juvenile delinquency.

¹³ There are numerous other factors that can be considered in mitigation. For further detail of those mentioned and additional factors, see Walker, N. & Padfield, N. (1996). *Sentencing: Theory, Law and Practice*. 2nd ed. London: Butterworths. See also the work of the Sentencing Advisory Panel which provides advice to the Court of Appeal <http://www.sentencing-advisory-panel.gov.uk/> (8 July 2002).

- 14.28 Should information about genetic factors that are correlated to a similar degree with antisocial behaviour also be admissible? Jonathan Glover has observed that it is 'unclear that there is anything radically different about explanations where the causal story goes back to the genes and explanations where the causal story goes back to early environment.'¹⁴ But what might be the implications of widening admissible factors to include genetic information?
- 14.29 The idea that facts about an individual's environment can affect the extent to which they should be punished for criminal acts contains an implicit assumption that individuals have essentially sound characters, but that unavoidable external influences they did not choose can have a negative effect on them. In contrast, if genetic information about an individual's susceptibility to antisocial behaviour is accepted, it seems to imply that the individual has essentially an unsound, or at least, a less sound character. We noted earlier (paragraph 14.20) that, given a particular background or environmental context, a genetic predisposition to impulsive behaviour, for example, might mean that an individual finds it harder than others do to control his/her actions.
- 14.30 If a genetic predisposition is identified in an offender, how might this information be interpreted in the context of sentencing? One possibility is that the offender will be seen as less accountable for his/her acts and therefore less deserving of punishment. But another possibility is that the offender will be seen as more likely to offend and less likely to be successfully rehabilitated. Nikolas Rose has suggested that:

'if antisocial conduct is inscribed in the body of the offender, it seems that it is not mitigation of punishment that is required but the long-term pacification of the irredeemable individual in the name of public protection, even if this means the rejection of many rule of law considerations, such as those concerning the proportionality of crime and punishment.'¹⁵

Such a concern would be misguided in the case of behavioural genetics, because, as we have stressed throughout this Report, the effects of genes are not immutable. Genetic influences on traits such as impulsivity and aggression cannot make us an 'irredeemable individual' because the effects of our genes are not inevitable.

- 14.31 In the case of antisocial behaviour, various ways of reducing their influence may be available. Potential interventions might include cognitive therapy and programmes in self-control and anger management. Other potential interventions such as gene therapy or medical treatments might also be possible. We took the view in Chapter 13 that, *prima facie*, the application of each of the three categories of intervention might be justified. However, we also noted that the use of genetic and medical interventions may be less desirable for a number of reasons. First, regarding genetic interventions, the safety of techniques such as gene therapy is liable to be lower. Secondly, if an individual has a genetic predisposition to aggression or impulsivity, it is likely that this will be manifested in response to certain environmental situations. The unwanted conduct will

¹⁴ Glover, J. The implications for responsibility of possible genetic factors in the explanation of violence. In Bock, G. R. & Goode, J. A., editors. (1996). *Symposium on Genetics of Criminal and Antisocial Behaviour*, Ciba Foundation 194. Chichester, UK: Wiley.

¹⁵ Rose, N. (2000). The biology of culpability: pathological identity and crime control in a biological culture. *Theoretical Criminology* 4, 5–34.

tend to occur at isolated intervals and might therefore be amenable to interventions that target the behaviour as it occurs, rather than those that attempt to alter the individual's underlying character. Such interventions might be more effective, but it is likely that cases would have to be assessed individually, with reference to the factors identified in Chapter 13 (see paragraph 13.26) before a judgement could be made about the most suitable course of action.

- 14.32 **We conclude that, with regard to the sentencing of convicted offenders, the criminal law should be receptive to whatever valid psychiatric and behavioural evidence is available. The taking into account of genetic factors would depend on the degree to which such evidence is convincing and relevant. Credible evidence of influence and a robust test for the genetic factor in question would be essential: the weight to be accorded to such information would be determined by the judge.** Currently, environmental, social and psychiatric assessments may be taken into account by judges in determining appropriate sentences. These must also be supported by valid, accurate and reliable evidence. It would be unwise to assume that genetics will not be able to assist in determining degrees of blame, even if the 'all-or-nothing' question of responsibility is not affected by genetic factors themselves. Such a role would not compromise basic assumptions as to responsibility.
- 14.33 Exchanges between genetics and the criminal law are at present not very productive given the uncertain nature of the evidence. This is likely to change. **We recommend that the criminal justice system should be open to new insights from disciplines that it has not necessarily considered in the past. The regular exchange of ideas in this area between researchers in behavioural genetics, criminologists and lawyers could be an effective means of ensuring that legal concepts of responsibility are assessed against current evidence from the behavioural and medical sciences.**

Predictive use of genetic information

- 14.34 Criminal justice adheres to the notion that liability and resulting punishment should always be based on specific and proven instances of misconduct. In the future, however, it is possible that genetic information could be used, either on its own, or in conjunction with information about environmental influences, in an attempt to show that an individual is likely to exhibit antisocial behaviour, even if he or she has not yet committed a crime and indeed may never do so.
- 14.35 Currently, attempts to predict future behaviour can play a role in the criminal justice system, but only in respect of decisions as to the future treatment of a person who has already committed an offence. Even in this limited context, it is important that claims as to ability to predict future behaviour are subjected to close scrutiny. At present the accuracy of such predictions – usually made on a psychiatric basis – is a matter of controversy. Where these are used as the basis of decisions to detain individuals on mental health grounds, they raise major issues of civil liberty and of the potential abuse of psychiatric disposal as a means of control.
- 14.36 In cases where the individual in question has not exhibited antisocial behaviour or been convicted of a crime, attempts to predict the likelihood of such behaviour in the future raise even greater concerns. In 1999, the UK government initiated consultation on the treatment of individuals with severe personality disorder. One option set out was the introduction of 'powers for the indeterminate detention of dangerous severely personality

disordered people in both criminal and civil proceedings. Those detained under the new orders would be managed in facilities run separately from prison and health service provision. The location for detention would be based on the risk that the person represented and their therapeutic needs rather than whether they had been convicted of an offence.¹⁶ Concern was widely expressed at the suggestion that individuals might be detained without having committed a crime, and furthermore, that this decision might be based on the diagnosis of a controversial psychiatric disorder.¹⁷ In this Report, we have often drawn attention to the blurred line between behaviour in the normal range and that which is considered a disorder. The case of 'severe personality disorder' is an important illustration of the risks of basing public policy on classifications and diagnoses which are not clearly defined and are not the subject of consensus among medical professionals.¹⁸

- 14.37 Despite the controversy over whether there is such a disease as 'severe personality disorder', it is fair to say that the estimated 2000 individuals in Britain thought to have the condition are those who display the extremes of behaviour, and would be most unlikely to fall within the range of normal variation. Could the use of genetic information to predict the behaviour of those who do lie within the normal range be justified? Further, could the use of genetic information in conjunction with other information, such as that concerning environmental influences on behaviour, for the prediction of antisocial behaviour be justified?
- 14.38 As far as the use of genetic information as a sole predictor of antisocial behaviour is concerned, it is unlikely that such information will be of sufficient accuracy to justify its use. Consider a hypothetical genetic variant that is present in 30% of the population and confers a five-fold increase in the probability of an individual committing a criminal act. If that act were common – say 5% of the total population was expected to commit the act in the future – then of those in the population with the 'at risk' genotype only 11% could be expected to commit the criminal act. Nearly nine out of ten individuals 'at risk' could be expected not to offend. Moreover, nearly one third of the individuals who subsequently commit the crime would have the 'low-risk' genotype.¹⁹
- 14.39 However, it may be that by combining information about environmental and genetic influences on antisocial behaviour with regard to a particular individual, a more accurate prediction is possible. Although, as we have repeatedly stressed in this Report, the effects of genes are not inevitable, information about genetic and environmental influences may generate statistical information relating to the chance of a particular individual exhibiting antisocial behaviour that may be thought sufficient to warrant intervention. In the case of children, attempts are already made to predict whether an individual who has not already done so is likely to exhibit antisocial or criminal behaviour in the future. In the UK, early

¹⁶ Home Office, Managing dangerous people with severe personality disorder: proposals for policy development. <http://www.homeoffice.gov.uk/cpd/persdis.pdf> (8 July 2002).

¹⁷ For example, in an article in the Guardian newspaper, the president of the Royal College of Psychiatrists, Dr Mike Shooter, said that dangerous severe personality disorder was 'a diagnosis which does not exist anywhere in the world' (Boseley, S. (2002). Psychiatrists to join protest over bill. *The Guardian* 29 July). The editor of the *Journal of Forensic Psychiatry* has observed that dangerous severe personality disorder 'is not a recognised term in psychiatry or psychology' (Buchanan, A. & Leese, M. (2001). Detention of people with dangerous severe personality disorders: a systematic review. *Lancet* **358**, 1955–9).

¹⁸ Specific reference to 'severe personality disorder' is not included in the draft Mental Health Bill which is being considered by the UK government in 2002. However, this Bill does allow for the detention of an individual with a serious mental health problem which is not amenable to treatment (in other words, a serious personality disorder) and who is judged to be a significant risk to others, even in the absence of a criminal conviction.

¹⁹ One study concerning dangerous severe personality disorder has suggested that in order to prevent one person with dangerous severe personality disorder from committing a violent act, six people would have to be detained, because of the difficulty in making accurate predictions of behaviour. The authors note that 'the decision as to what rate of error should be deemed acceptable from the point of view of preventive detention is ultimately a moral one.' (Buchanan, A. & Leese, M. (2001). Detention of people with dangerous severe personality disorders: a systematic review. *Lancet* **358**, 1955–9).

intervention programmes target 'at risk' groups in order to provide environmental interventions.²⁰ These interventions are aimed at benefiting the individual concerned, and thereby indirectly benefiting society. This is a very different situation from one in which an individual is detained against his or her will in the interests of society. What arguments can be made against including the use of genetic information in current practice?

- 14.40 As a starting point, it must be firmly acknowledged that attempts to identify classes of potential offenders would offend the presumption of innocence which we make of our fellow citizens and which underlies principles of equality. This applies both to predictions based on genetic information and on information about environmental factors. However, this presumption of innocence must also be balanced against the need to ensure a safe society. Since no prediction using either genetic or environmental factors will be infallible, there must be very good reasons for encroaching on the presumption of innocence. One such reason might be the possibility of an intervention that would reduce the likelihood that antisocial behaviour would be displayed.
- 14.41 A strong argument against the use of such genetic information without the consent of the individual in question is that conducting a genetic test might be seen as an unjustified invasion of privacy.²¹ With regard to the testing of adults, it is permissible in extreme circumstances to subject people to compulsory diagnostic procedures, but these are strictly limited by law. It is unlikely that genetic testing of people who have not been convicted of any crime would fall within the boundaries of any currently permissible category. With regard to the predictive testing of children, it is firmly enshrined in law and practice that medical interventions in children must be for their benefit, that is, in their best interests. For this reason, predictive genetic testing of children for late-onset diseases is not undertaken unless it is required to enable early intervention.²²
- 14.42 Despite current attitudes towards the predictive testing of children, it might be suggested that children should be tested to discover whether they are likely to exhibit antisocial behaviour, perhaps as part of a strategy for reducing juvenile antisocial behaviour. We noted that one study has suggested that children with a particular genotype may be at higher risk of exhibiting antisocial behaviour if they are exposed to abusive parenting (paragraph 9.25 and paragraph 14.10). If this result were found to be reliable, it might be suggested that children should be tested for the relevant genotype in order that particular attention could be directed at their family environment if required.
- 14.43 Medical tests on children not competent to give consent require the consent of the parent or other adult legally entitled to give consent on behalf of the child. Such consent is only valid if it is in the best interests of the child. It is possible that testing linked to environmental interventions, and indeed medical interventions, could be described as being in the best interests of the child. However, a case could be made against this

²⁰ One interesting programme is the charity Communities that Care, which is funded by the Joseph Rowntree Charitable Trust and aims to build safer neighbourhoods by targeting risk factors in the lives of children (www.communitiesthatcare.org.uk (11 July 2002)). The programme is based on a US scheme that aims to reduce antisocial behaviour among children by reducing risk factors and increasing preventive factors. Risk factors are identified at the level of the community, school, family and individual. While medical or genetic factors are not considered, it is possible to imagine a similar rationale being put forward for their use.

²¹ There is a growing body of international bioethical norms which specifically prohibit non-consensual genetic testing, on the grounds that it constitutes an invasion of the right to private life. These international conventions are outlined in Box 15.1.

²² Older children who are found competent to consent may be tested predictively for late-onset diseases or for carrier status on their request.

argument on the grounds of privacy and of stigma. It can be argued that children have the same right to genetic privacy as do adults and that there are therefore limitations to the circumstances in which general diagnostic testing of children should be authorised. If stigmatisation based on knowledge about genetic influences on behaviour is greater than that which may arise in response to knowledge about environmental influences, this could provide a reason for allowing prediction based on environmental information only. Additionally, it might be argued that interventions aimed at those who are more likely to exhibit antisocial or criminal behaviour, which rely on information about environmental factors, tend to target groups, such as classrooms, schools or communities, rather than singling out individuals, and are thus less problematic than those that would also make use of genetic information to target interventions at specific individuals. However, in both cases, it is ultimately the case that interventions are aimed at individuals.

- 14.44 We take the view that while the reduction of antisocial behaviour and crime are important goals, any attempt to predict the behaviour of an individual who has not exhibited antisocial behaviour, and to intervene accordingly, poses a significant threat to civil liberties and should be treated with great caution. The use of predictive genetic tests to anticipate antisocial behaviour for the purposes of preventive action in the case of individuals who have not already exhibited such behaviour raises ethical questions about balancing the interests of individuals against those of society. **We consider that the predictive use of genetic information about behaviour in the normal range, used in isolation in the case of individuals who have not exhibited antisocial behaviour, is unlikely to be warranted because the predictive power of such information is likely to be weak and there is a risk of false predictions. However, we take the view that the use of such information in conjunction with information about other, non-genetic influences on behaviour may be justified if the aim is to benefit the individual, and in doing so, to benefit society also. We recommend that the prediction of behaviour with a view to detaining an individual who has not committed a crime is not justified, whether such predictions are based on information about genetic or non-genetic influences on behaviour.**

Conclusion

- 14.45 In this chapter, we have considered three different ways in which information about genetic influences on behaviour may be used in the criminal justice system: to absolve an individual from responsibility; as a mitigating factor in sentencing an individual who has been convicted of a crime; and to predict the likelihood that an individual will exhibit antisocial behaviour in the future, when he or she has not already done so. In the first case, we concluded that genetic influences on behaviour in the normal range should not absolve an individual from responsibility for their behaviour. In the second, we concluded that, in the same way that environmental factors may be taken into account in mitigation, genetic factors could play a similar role, depending on the reliability and accuracy of the information. With regard to predictive testing, we concluded that neither genetic nor non-genetic information should be used to predict future behaviour with a view to detaining an individual who has not been convicted of a crime. However, we suggested that, if such information could be used for the benefit of the individual, for example, as a reason for improving particular environmental conditions, this may be justified. We also recommended that genetic information should not be used in isolation in such cases.