Book reviews

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As possession of the Y chromosome provides the clearest evidence for a genotype with a predisposition to antisocial behaviour, a possible subtitle for this could be "Adam and evil". The premises here concentrate on an evaluation of non-Y linked genetic factors. As several contributors point out, an inclination to aggression is integral to our survival mechanism and thereby provides pitfalls for its simple genetic analysis. Criminality is not a biological characteristic, it is a social construct; labelling particular constellations of behaviours as "disorders" can therefore be unhelpful. Several other important reservations are addressed in this volume. For example, many would agree with Cairns (p55) that "there is a special folly in recent attempts to identify the 'gene' for aggressive behaviours, whether by the methods of molecular genetics or by pedigree analysis". I think we all recognise that behaviours are plastic and genetically rather intrac-tible by virtue of their distance from the primary levels of gene function. In spite of these and other considerations, there are compelling reasons for investigating the role of genetic factors in antisocial behaviour. Many current experimental approaches are covered including animal studies, re-evaluation of specific candidate loci, linkage mapping, and familial correlations. The proceedings conclude with highly readable chapters providing both evolutionary and psychopharmacological insights and a consideration of behavioural genetics in context of individual responsibility.

For my money, there is too much emphasis on previously reported attempts to assign the relative contribution of genes and environment through the interpretation of adoption and twin studies. Much of the text is also devoted to the discussions, which follow each chapter and each section; these could be extensively edited without significant loss. So, for those with a pressing schedule, it would be worth concentrating on the clear introduction and concise conclusions by Rutter. The contributions by Goldman and Brunner with a major emphasis on the contributions of molecular approaches are also highly recommended.

The chapter by Maxson provides a balanced account of the practical advantages and theoretical problems to be encountered in mouse models for human aggression. A very positive approach to this role is also taken by Cairns, who discusses aggression from a developmental perspective. One of the mainstays of animal studies has been linkage mapping, either of discrete traits or via surveys for quantitative trait loci (QTL). This approach has been notable recently through the identification of loci implicated in the aetiology of stress (Flint et al. Science 1995;269:1432-5). Another major contribution from animal studies is through "gene knock-out". The example discussed in this context is that of the 5-HT1Db serotonin receptor. Perhaps surprisingly, mice lacking this neuron show normal behaviours, although males show a twofold increase in frequency of attacks on intruders. While judgement should be suspended as to the consequences of equivalent aberrations in human behaviour, two more dramatic examples of neuronotransmission defects resulting in aggression in "knock-out" mice have been reported recently for the monoamine oxidase, MAOa, and neuronal nitric oxide synthase, NOS1, genes.

It is instructive to note that the most direct and controversial implication of a gene defect in human aggressive behaviour also involves the MAOa locus (see Maxson). In contrast, attempts to confirm the role of many candidate genes identified through allelic association have, in general, been unsuccessful. As noted by several contributors, marker associations have often proved to be fragile and unrepeatable.

In conclusion, the symposium underscores how difficult it is to separate cultural, sociological, and emotional influences from hard science in behavioural studies. We can now hope that the rapid advances in molecular biology will increasingly enable the roles of specific candidate genes (such as MAOa) with small total impact, but with well-established psychopharmacological function, to be teased out. Evidence for the roles of both genes and environment and even for their interaction has been generally accepted for more than a decade. What emerges from the symposium is a fairly resounding confirmation of these general conclusions. The next 10 years should see some of the contributing factors hang on more specific pegs. So, although the already dated, these proceedings are still worth studying by those involved in the field and particularly by the advanced guard of molecular biologists moving into this challenging area.

Ian Craig


This excellent pocket sized text book encompasses, very successfully, the fundamentals of genetics, functional aspects of genetics, and information about genomic organisation. It is aimed towards students of medical sciences and biology but would also be a very useful reference book for physicians who are beginning genetic research and who wish to read a basic but comprehensive text book.

The book has been written so that each page of text has opposite a full page of explanatory diagrams. These are all in colour and have been well thought out so that they complement the text. This makes it easy to read and the information is very accessible. Instead of being put off by pages of turgid text full of jargon the reader feels tempted to read on or at least to look at all the pictures!


A CAROLINE BERRY
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This letter was shown to Drs Michie and Marteau, who reply as follows.

Dr Berry raises several important questions concerning predictive genetic testing in children: the age at which a child's opinion about his/her own testing should be sought, whether a proxy should give an opinion in the case of a young child, and the extent to which a child should have a say in the decision about whether and when to be tested.

In the absence of data to inform these questions directly, research concerning children's informed consent in other areas can shed some light.1 The general trend over the last decade has been one of discovering greater competencies in young children than previously attributed2 and of giving a greater responsibility to children for decisions about, for example, their medical treatment and participation in research.

There are also ethical questions about whether parents should be allowed to make such decisions for their children. In the past, and, again, we lack the evidence of the impact on children and family life of parents either being allowed to make this decision or of not being allowed to make this decision. Our recently reported single case study suggested that the latter can lead to anger both within the family and with health professionals.3 Dr Berry argues that teenagers may resent having been treated as a child. In the case study found resentment of not having been tested as a child. As Dr Berry states, we need more information about what children and teenagers think about these issues.

We are currently conducting a multicentre trial to investigate the psychological impact of predictive test results on children and their parents. Much more research is needed if we are to have an informed debate on these important issues.

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