there is a default position of trying to apply adult findings to the younger client population. This makes child and adolescent issues perhaps a complication of an adult disorder, which of course we all know is not the case as these particular disorders do indeed mainly develop in adolescence.

In conclusion, for the reader that likes to consume a book cover to cover this is not the book for you. If, however, you like to pick out selective chapters and discard the rest then there is something of interest in here for most people.

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Beyond Nature and Nurture in Psychiatry: Genes, Environment and their Interplay. Edited by J. MacCabe, O. O'Daly, R. Murray, P. McGuffin and P. Wright. (Pp. 240; £60; ISBN 9780415373005.) Taylor & Francis (UK) Ltd. 2006.

James MacCabe and colleagues have edited a useful volume of chapters about an evolving area of psychiatric and behavioral research: gene–environment interactions. The theme of the volume is that it is time to move beyond the 'nature *v.* nurture' debate and recognize that we now have methodologies that provide rich opportunities to understand how behavior is influenced by environmental and genetic factors, with the traditional methods of behavior genetics merging with modern technologies for exploring the effects of specific DNA sequences variations among people. There are 21 chapters; three introductory chapters, followed by a series of chapters by researchers who have been working on relevant problems in studies of cognitive abilities, childhood disorders and development, affective (mood) disorders, psychotic disorders, addictions, and diagnostic issues. Most chapters are relatively brief overviews. The book will be most useful as a starting point for students and trainees, as well as for clinicians looking for a window into this fascinating area of research. Researchers may find it valuable as an introduction to work outside their own fields.

Several of the chapters are particularly valuable. Pak Sham provides an excellent summary of the types of gene–environment interactions and methodologies for studying them. Sharon Schwartz and Ezra Susser argue that standard twin study methods underestimate the contribution of shared environment (that which impacts on both siblings), by attributing entirely to genetic factors the effects of gene–environment interactions with shared environment, and by attributing to unique environment (impacting only on one sibling in the family) the effects of interactions between shared and unique environment. Heather Ross and Larry Young provide an engrossing summary of the evidence that a specific DNA sequence variant in the vasopressin receptor gene influences bonding and paternal nurturant behavior in prairie voles (although gene–environment interaction is not specifically demonstrated). Tyrone Cannon describes how twin designs can differentiate between the effects of genes (including specific variants in the *DISC1* and *TRAX* genes on chromosome 1) and non-genetic factors (such as fetal hypoxia) on anatomical and neuropsychological differences in schizophrenia patients and their relatives. Kenneth Kendler ends the book with a thought-provoking summary of his group's work on gene–environment interactions – more about this work later.

There are too many chapters to note all of them here. Other chapters which I found particularly interesting include Marcus Richards' summary of the relationship between birth weight and IQ; a balanced and thoughtful review (by Stanley Zammet and Michael Owen) about the hypothesis that risk of depression is increased by an interaction between stressful life events and the short allele of a specific serotonin transporter gene variant genotype; Ian Goodyer's fascinating summary of work on the effects of genes and psychological adversity on adolescent depression, mediated by increased cortisol levels (although evidence for an association between depression and DNA variation in the glucocorticoid receptor is perhaps accepted a bit too uncritically); a sober but appropriately optimistic summary by Nigel Williams and colleagues of genetic findings in schizophrenia; and a clear, concise review by Isabelle Boileau and colleagues of the relationships among novelty seeking, addictions, and binding at the dopamine-2 and -3 receptors as measured by positron emission tomography. Some chapters

are less satisfying, but on the whole the book was a good and informative read.

Kendler's chapter is a fitting conclusion. He reviews a large body of work in a straightforward manner, showing that hypotheses about gene–environment interactions were supported in some studies but not in others. The details are worth reading: they involve an exploration of the genetic relationships among depressive-anxiety ('internalizing'), and conduct-anti-social-addictive ('externalizing') disorders; the lack of an interaction between genes and dysfunctional family environment in the prediction of neuroticism (a rather heritable personality trait that predisposes to depression); and evidence that at least partially supports the hypothesis that the serotonin transporter 'short' allele increases risk of depression after stress, although the results take a slightly different form that the initial prediction.

Perhaps more important for the book as a whole are the last two pages, which contain some important cautionary notes. One is that because of the problem of interpreting the number of statistical tests required to analyse many genetic variants in combination with many environmental factors, it will be a challenge to accumulate enough statistical evidence to prove gene–environment interactions. A second is that there are two main types of interactions (Sham's chapter also discusses this point). In one type, a genetic and an environmental factor have separate measurable effects on outcome which increase when both are present. Finding these is straightforward: one tests combinations of factors that have been detected on their own. But the other type occurs when, for example, the genetic effect can only be detected as part of an interaction. For example, there is little evidence that the 'short' allele produces any substantial increased lifetime risk of developing major depression, yet in relatively small studies, it has been possible to detect an increase in episodes soon after a major stressor, in people carrying the 'short' allele (or, in Kendler's own data, in those carrying two short alleles) – perhaps representing what Kendler calls a 'sensitivity' rather than a 'main effect gene' for this outcome. These interactions will be more difficult to prove, because they will require testing many factors which, by themselves, have no measurable effect. Despite the challenges ahead, this book makes the case that emerging clinical and molecular research technologies will provide us with opportunities to understand behavior and behavioral disorders as never before.

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