genotype approaches. Thus, even if coding-sequence polymorphisms are detected, their sheer number may reduce drastically the sensitivity of such association studies. Weiss raises many such issues that affect the spectrum of complex-disease genetics, and none of them is resolved fully. I wish that the author had extrapolated more than he has about the ramifications of his evolutionary model on our current approaches to mapping complex disease–predisposing genes and about how we might improve current methods.

There are a great many practical reasons to understand the concepts presented. We are spending millions of taxpayer dollars on the genome screening of many different pedigree or population-based data sets for every potentially genetic trait. Careful review may be needed both to decide if this is a responsible way to spend the money and to identify traits that may be studied most effectively by use of this approach. As the author states, "a few rare alleles at major genes that affect a trait . . . are of little population importance" (p. 313). In the context of the author's prognostications about the large number of different alleles predicted at each locus, one might reconsider whether it is really sensible to invest millions of dollars to develop maps of biallelic markers spanning the genome, for the purposes of disequilibrium analysis. The author advocates thoughtfully planned experiments as the best investment. He writes: "Order can be found in the complexity if we know what to look for. I have tried to suggest that it is in the context of evolution that we are being led to such a synthesis" (p. 314). Drug-company executives contemplating a major investment in the isolation of an array of predisposing alleles of high frequency and weak effect also should consider carefully the arguments raised herein, to evaluate whether their investment is fiscally prudent for each trait that they propose to study. Many other issues are raised indirectly in the book, and readers will finish with different concerns of their own. If a good book is one that provokes the reader to think beyond the printed word, surely this is a book that satisfies that criterion.

Weiss, however, is not entirely pessimistic. Although he both points out many issues that may prove to be stumbling blocks in our efforts to understand the genetic basis of human disease and explains why the "landscape is subtle and complex" (p. 306), he provides reassurance: "Clearly, as mass genotyping technology becomes available, along with a more complete polymorphic map, we will be able to document an increasing fraction of the alleles that have consistently strong effects" (p. 306). Although these rare alleles of strong effect do not explain much of the general population variability in which Weiss is primarily interested, as Weiss does admit, these identifiable alleles ultimately will be of "great biomedical importance" (p. 313).

JOSEPH D. TERWILLIGER
Department of Psychiatry and Columbia Genome Center
Columbia University
New York

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Gene Therapy: A Primer for Physicians. 2d ed. By Kenneth Culver. Larchmont, NY: Mary Ann Liebert, Inc. Pp. 216. $59.00.

Human gene therapy has grown exponentially over the past decade and has expanded into a field including well over 100 clinical trials. As the number of trials has grown, so has the need for practicing physicians to understand gene therapy, in order to be able to guide their patients. This book provides a unique resource, since it attempts to educate both the physicians and the patients who may be interested in participating in gene therapy trials. The second edition includes expanded discussions of genetic diagnosis and gene therapy technologies and provides updated information in the appendices. The book begins with a brief introduction to the development of recombinant DNA and gene therapy technology, followed by the methods used for gene transfer/gene therapy. The second section focuses on individual diseases and the techniques used to treat them with gene therapy. The bibliographies are extensive and include many of the most useful primary references. However, the choice of topics seems somewhat arbitrary. Whereas the author stresses the importance of identifying disease genes, he gives less attention to the fundamental technical challenge in gene therapy—that is, how to transport a large, highly charged molecule (i.e., DNA) into the cell nucleus. A welcome addition would be a table comparing and contrasting the efficiency of the various techniques and vectors available for the transduction of cells in culture or in vivo. There are a few inaccuracies; for example, in the section on cancer gene therapy, the description of "sensitivity" enzymes, which would render a cell susceptible to chemotherapy (e.g., thymidine kinase/ganciclovir treatment), omits several important enzymes and misstates the relative potencies of different systems. The section on ethical issues in gene therapy is quite short but does highlight the major points.

The third section includes appendices, which include some extremely useful, as well as some irrelevant, information. The list of resources for further information (appendix A) could be far more inclusive, and the appendix entitled "Points to Consider" (appendix E), which describes the requirements for Recombinant DNA Advisory Committee submission of protocols, is of limited interest to the intended audience. The index linking health disorders to chromosomal locations (appendix D) is only relevant to individuals interested in the efforts to map the human genome; this index might have been improved by the linkage of health disorders to specific disease genes and by the inclusion of relevant references. The well-organized, but slightly outdated, list of currently approved gene therapy trials and contact people (appendix B) is

clearly the most useful portion of the appendices. This appendix would have been strengthened by the inclusion of information on how to access the latest information on current gene therapy trials, principal investigators, and guidelines from both journals (listed in appendix A) and web sites (e.g., the NIH site Gene Therapy for Human Patients at http://www.nih.gov/od/orda/cover.htm). In summary, although this book is somewhat uneven, this edition is a valuable starting point for both physicians and patients with an interest in gene therapy, and it provides a useful overview of the state of ongoing gene therapy trials.

KAREN KOZARSKY

Institute for Human Gene Therapy
University of Pennsylvania
Philadelphia

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Life as We Know It: A Father, a Family, and an Exceptional Child. By Michael Bérubé. New York: Pantheon Books, 1996. Pp. 284. $24.00.

This is an extraordinary book. Bérubé, a professor of English at the University of Illinois at Urbana-Champaign, has written an intimate book about his family, comprised of himself and his wife, Janet Lyon, and their two sons, Nick and James. James has trisomy 21 and Nick does not.

In this beautifully written book, Bérubé explores and interweaves the intensely personal effect, on a family, of a child with Down syndrome; the effect of society on that child and family; and, in turn, the impact of that child on society. With skillful prose, always tempered with laugh-out-loud humor, Bérubé not only argues compellingly for Jamie's place at "our" table, but also demands that we look long and hard at our definition of table and at our definition of us. How do we define who and what is human? How do our societal values sculpt our willingness to engage and to embrace those who are "different," and what are our personal and societal obligations to do so?

Bérubé skillfully juxtaposes anecdotes and vignettes from Jamie's short life, with explorations of philosophy (the Wittgenstein is occasionally tough going, at least for this reader), legislation, science, and history. In the chapter "Genetic Destiny," Bérubé offers one of the clearest explanations of meiotic nondisjunction that I have ever read. He walks us through the excitement of his wife's second pregnancy, their decisions to eschew amniocentesis and prenatal diagnosis, their reactions to the birth of their son with trisomy 21, and their subsequent experiences throughout their son's stormy neonatal course and early childhood. The author's narrative is peopled with physical therapists, occupational therapists, teachers, friends, neighbors, and physicians. He discourses at length with regard to the issues of prenatal diagnosis and pregnancy termination, coming down clearly on the side of freedom of choice while, at the same time, recognizing that he and his wife have made a different choice with which they are comfortable.

I bought the book because I had heard Bérubé speak on National Public Radio and had thought that the book sounded interesting. I put it down once after I began reading, only because I needed to sleep. I have not stopped thinking about it since I first read it four weeks ago, and I expect that I will read it again. It has made me think deeply about my role, as a medical geneticist, in delivering diagnostic and prognostic information to parents. It has made me question my own values regarding quality of life and my own arbitrary assignment of humanity to others.

This is an honest book. I believe that the author has allowed me into the most intimate corners of his life and has bravely articulated his own conflicting ideas, feelings, and responses to his second son. This is a sweet book. It is laced with undeniable love. Bérubé has been most generous in sharing himself and his family with us. Bérubé states, "My task, ethically and aesthetically, is to represent James to you with all the fidelity that mere language can afford, the better to enable you to imagine him—and to imagine what he might think of your ability to imagine him" (p. 264). He has succeeded.

Buy this book and read this book. I think it should be mandatory reading for all of us who pretend to know what we are doing when we provide genetic counseling to families.

VIRGINIA P. SYBERT

Divisions of Medical Genetics and Dermatology
Children's Hospital and Medical Center
University of Washington
Seattle

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Chromosome Abnormalities and Genetic Counseling. By R. J. McKinlay Gardner and Grant R. Sutherland. Vol. 29 in: *Oxford Monographs on Medical Genetics*. New York: Oxford University Press, 1996. Pp. 478. $59.50.

Genetic counseling in cases of chromosome aberrations can be very difficult and tricky, as is well known not only to insiders. Particularly difficult to handle are prenatal diagnoses, especially when they are based only on cytogenetic results without the support of molecular investigations. It is notoriously difficult to find adequate references and guidelines for the many unique situations that may occur. It is therefore very praiseworthy that its authors undertook the effort to dedicate a book to the issue of genetic counseling in chromosome aberrations. Indeed, *Genetic Counseling in Chromosome Aberrations* might have been a better title.

The first section of the book ("Basic Concepts) offers an introduction to the principles of human cytogenetics. The following sections are entitled "The Parent with a Chromosome Aberration," "The Normal Parent with the Chromosomally Abnormal Child," "Reproductive Failure" (due to chromosomal aberrations), "Prenatal Diagnosis," and, at the end, appendices that mainly include