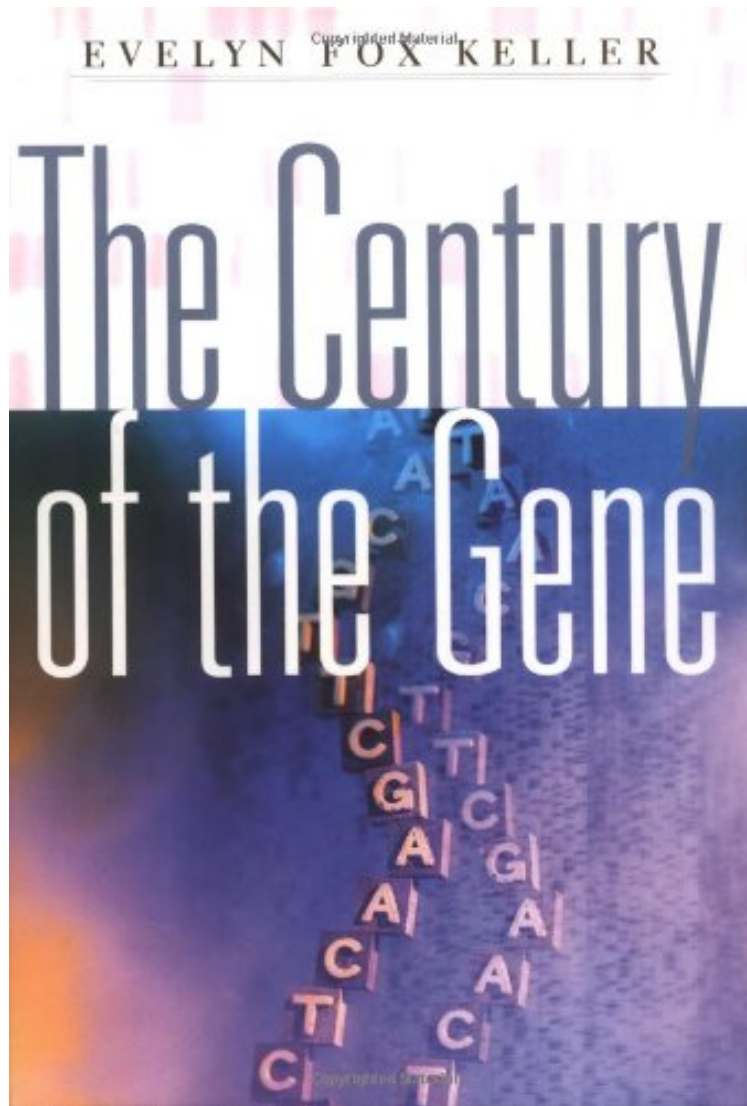


[Download] The Century of the Gene

## The Century of the Gene

*Evelyn Fox Keller*

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**Evelyn Fox Keller : The Century of the Gene** before purchasing it in order to gauge whether or not it would be worth my time, and all praised The Century of the Gene:

0 of 0 people found the following review helpful. Five Stars By ptilosphen Its a very good and concise review of current knowledge 2 of 3 people found the following review helpful. No figures in the Kindle edition By Peli How is it that the Kindle Edition of this book refers to the print edition to view the figures? No previous warning before buying. My rate does not relate to the content of the text. 1 of 1 people found the following review helpful. Published review By N. Sankaran This book has a place in the nerd compartment of my heart because it was the subject of my first ever

academic publication. Granted it was only a book review that I published, but I was a lowly graduate student at the time. For what its worth, here's the full text of the published review, which appeared in the "Journal of the History of Medicine and Allied Sciences," way back when in 2001. Self promotion, one might say. Well perhaps, but at least it's a freebie - no hidden agenda to ask anyone to read my book. The full citation is: Sankaran, N. (2002). Review: The Century of the Gene. *Journal of the History of Medicine and Allied Sciences*, 57(1), 106-108. Those who have read books by Evelyn Fox Keller may have already noticed her engagement with the issue of the interrelationships between language and science. These interrelationships have formed the context for her discussions of a wide variety of topics, including scientific biography, the role of gender in science, evolution, and molecular biology. In *The Century of the Gene* she turns to language once again, this time to analyze the meaning of the word "gene" through the twentieth century, not only to explain key concepts but also to illuminate important problems in the field of genetics and molecular biology. Timed to appear shortly after the publication of the first draft of the Human Genome Project, Keller's stated aim in this book is to "celebrate the surprising effects that the successes of the [genome] project have had on biological thought" (p.5). Simultaneously a history and a critical analysis of a discipline, the book tackles the main issues in modern genetics and genomics, looking at such fundamental questions as the form and function of genes and their relationship to building an organism. Concluding with a section entitled, "What are genes for?" Keller examines the future of genetics in the context of the revelations of the genome project. As she rightly points out, genetics and the gene have undergone a powerful transformation in the course of the century, from 1909, when the term "gene" was a relatively obscure term coined to represent a unit of heredity, until the present, when the word pervades the popular press and where, with the sequence of the genome in hand, scientists are realizing that our knowledge about the information we store and how it plays itself out during our lifetimes is far from complete. In light of these developments, Keller contends that the word "gene" is limited in its explanatory power and argues for the development of a new language and vocabulary which will enable us to better deal with the complexity of biological information, organization, and development. As with her other books, this one is quite brief, and as always, its brevity should not mislead readers. In science, as in fashion, elegance lies in understatement, a weapon that Keller wields with great facility. The price paid for such sophistication is accessibility; this book is not for the casual layperson or even a novice student hoping for a quick course in genetics. *The Century of the Gene* serves as an important signal to biologists in all spheres of investigation to start thinking and thinking hard about the implications of their discoveries and the language in which they describe it, but it is a warning that only insiders would recognize. Unless one has a basic notion (albeit in Keller's estimation a flawed and incomplete notion) of what a gene is, it is difficult to grasp the power and subtleties of her arguments for revamping the concept or providing genetics with a new vocabulary. It should be noted also that, for all her arguments about the inadequacies of the word and its connotations, not once does Keller offer an alternative. This is perhaps not necessary, or even desirable, in a book like this because Keller is examining the problem as a historian and philosopher and not as a bench scientist, but the fact is worth noting because it reveals the inherent difficulties in executing a proposal such as hers. Without the basic working definition of the gene as we understand it today as a structural and functional unit of heredity there is nothing for us to hold on to, as we try to make sense of the information that we uncovered through the Human Genome Project. As fuzzy and shape changing as the word "gene" is, it is still an essential ingredient to understanding biology, heredity, and evolution, for lay people and biologists alike.

In a book that promises to change the way we think and talk about genes and genetic determinism, Evelyn Fox Keller, one of our most gifted historians and philosophers of science, provides a powerful, profound analysis of the achievements of genetics and molecular biology in the twentieth century, the century of the gene. Not just a chronicle of biology's progress from gene to genome in one hundred years, *The Century of the Gene* also calls our attention to the surprising ways these advances challenge the familiar picture of the gene most of us still entertain. Keller shows us that the very successes that have stirred our imagination have also radically undermined the primacy of the gene--word and object--as the core explanatory concept of heredity and development. She argues that we need a new vocabulary that includes concepts such as robustness, fidelity, and evolvability. But more than a new vocabulary, a new awareness is absolutely crucial: that understanding the components of a system (be they individual genes, proteins, or even molecules) may tell us little about the interactions among these components. With the Human Genome Project nearing its first and most publicized goal, biologists are coming to realize that they have reached not the end of biology but the beginning of a new era. Indeed, Keller predicts that in the new century we will witness another Cambrian era, this time in new forms of biological thought rather than in new forms of biological life.

.com We've been under the spell of DNA for too long. Science historian and MacArthur Fellow Evelyn Fox Keller makes the case for radically new thinking about the nature of heredity in *The Century of the Gene*. This short, magisterial treatise examines 100 years of genetic thinking and finds outdated elements of Victorian beliefs still permeating our scientific writing. Despite compelling evidence that cytoplasmic and other nonchromosomal factors play important roles in development and even in the inheritance of traits, most discussion still relies on the master-

slave (or manager-worker) relationship between the nucleus and the cell. Keller wants to move on; her proximate goal is to proceed from talking about genes to talking about genetic talk, the better to understand our biases. Her excitement at developments such as the Human Genome Project, despite her initial doubts, is only heightened by the prospect of vast stretches of uncharted intellectual territory. Ultimately, of course, her program matches that of the scientific enterprise--to more fully understand ourselves and our world. What comes after The Century of the Gene? It's an excellent question, and one that can only be answered once we leave behind the baggage of the past. --Rob Lightner

From Publishers Weekly  
A former MacArthur fellow and a professor of history and philosophy of science at MIT, Keller (*Keywords in Evolutionary Biology*) tackles the contemporary revolution in genetic science. Although originally a critic of the Human Genome Project (the effort to sequence the entire human genome), Keller doesn't dismiss it out of hand anymore. "What is most impressive to me," she writes, "is not so much the ways in which the genome project has fulfilled our expectations but the ways in which it has transformed them." In this tight, clearly written survey, Keller does a wonderful job of explaining and demonstrating how our knowledge of genetics has accumulated to the extent that we can fathom what we don't understand. In her articulate and insightful, if abbreviated, history of genetics and molecular biology, she suggests that most of our common assumptions about genes are either too simplistic or simply incorrect. It turns out, for example, that a single functioning gene may be split and found in several locations on a chromosome, and it's rare that a gene can be determined to have caused any particular trait, characteristic or behavior. Keller argues that scientists have gained a great deal by refocusing their attention from individual genes to the concept of an integrated genetic program. Keller's ideas are provocative, and she is interested in contributing to a popular discussion about the politics of genetic research, but because she skips a lot of the scientific basics, the general reader won't be able to grasp all of her points. Even so, her reputation as a scholar of genetics means this will appeal primarily to hard-core biology/genetics devotees. (Oct.) Copyright 2000 Reed Business Information, Inc.

From Library Journal  
In scientific literature as well as the popular press, "gene talk" is rampant and, even when technical, can seem confidently glib. Keller (*Refiguring Life: Metaphors of 20th Century Biology*), a noted feminist historian and philosopher of science, wonders whether these writers really know what they are talking about. Over the last century, scientific conceptions of what a gene is and does have changed from its being viewed as a discrete element of heredity to an ingredient in a determinant program to a component of a dynamic, distributed, self-correcting network. Yet the word gene, with all of its ambiguities, has been retained. Keller puts this philosophical problem in a broad context, and while the historical stories of discoveries in genetics have been told many times, her interpretations of how they changed the meanings of gene carry the argument for a new vocabulary for the field. Especially compelling are her analogies between biological development and adaptive computer systems. This discussion is for scientists and historians/philosophers of science mostly. For general readers, a good overview of genetics and DNA is Dorothy Nelkin and M. Susan Lindee's *The DNA Mystique* (LJ 3/15/95). DGregg Sapp, Science Lib., SUNY at Albany Copyright 2000 Reed Business Information, Inc.