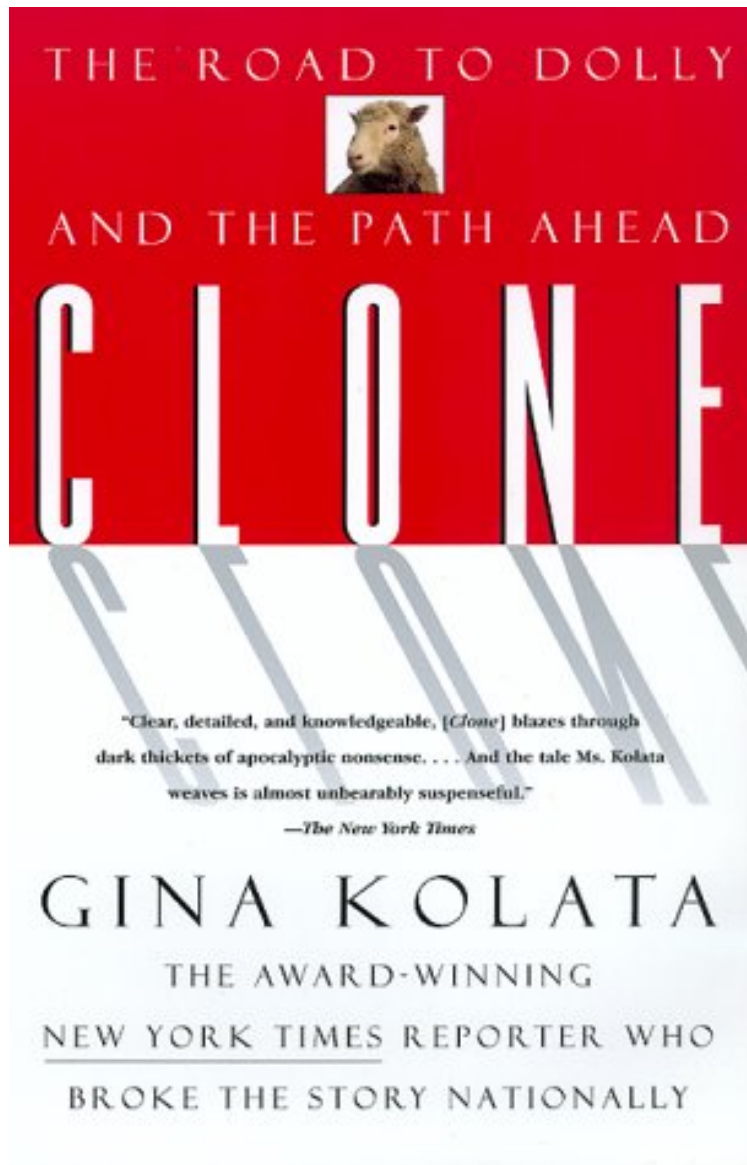


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Clone: The Road to Dolly and the Path Ahead

Gina Kolata

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Gina Kolata : Clone: The Road to Dolly and the Path Ahead before purchasing it in order to gauge whether or not it would be worth my time, and all praised Clone: The Road to Dolly and the Path Ahead:

0 of 0 people found the following review helpful. Taking a "Second Look" at "Clone" By Joseph P. Tevington It's nearly a decade, since I read this book. While this work was NOT a book in which to search for a proper ethical analysis, NY Times reporter Gina Kolata provided a wonderfully readable narrative of cloning "science" up to

"Dolly." I was particularly struck by certain of her inclusions:* "Marie Antoinette Di Berardino, a serious woman who was a cloning pioneer, and who had been studying cloning in frogs since the 1950s, said she could imagine nothing that would justify cloning a human being: 'I'm coming from a Roman Catholic background, and I'm telling you, it's killing me,' she said. 'We have lost so much respect for human life in so many ways. I just have a fear that this may be taking a step too far'" (pp. 36, 37).* "The early days of embryology were the days of the gentlemen scientists, dressed formally in coats and vests, and priding themselves on their worldly interests....those early embryologists sought the company and the comments of other great thinkers and purposely tried to envision their work in a philosophical context. Science and philosophy, in fact, were intermingled to such an extent that, [Washington University developmental biologist David] Kirk said, 'no serious scientist would think of publishing his results without trying to draw philosophical conclusions from them.' These scientists took the title Doctor of Philosophy very seriously. For much of the 19th century in the early part of the 20th century, science was actually called natural philosophy. And 'at least until Darwin's time, a majority of biologists thought that what they were doing was elucidating God's handiwork, approaching the mind of God by studying His creations,' Kirk said" (pp. 48, 49).* "The ethics movement had its roots in real scandals and moral dilemmas of the late 1960s and early 1970s....IN order to develop a vaccine for Hepatitis B, doctors had purposely infected mentally retarded [sic] children at the Willowbrook State Hospital in Staten Island with the liver virus....The study eventually resulted in a vaccine against this incurable disease, but the damage to the public's perception of the morals of scientists was done....Once again, it seemed [sic], the weakest and most vulnerable were being used by scientists to advance their careers" (pp. 77, 78).* President Clinton asked his National Bioethics Advisory Commission to respond to cloning's ethical and legal ramifications. At that time, the commission was chaired by Princeton University President Harold Shapiro. It was this same Harold Shapiro who picked Peter Singer for an endowed ethics chair at Princeton. Unbelievably, Peter Singer has maintained that human parents should be allowed to kill their newborns - up to several months. If the chair of this commission could pick such an individual for an endowed ethics chair, what sort of "credibility" could the commission of that era possibly claim? AS per Kolata, "the commission's final report suggested banning only the cloning of cells from people who had already been born, leaving the door open to many of the possibilities that the infertility doctors [sic] envisioned" (p. 244).* "Steen Willadsen...[was a] Danish scientist who was the first to clone a sheep from a sheep embryo cell" (p.129). The following three sentences of Kolata's text are as follows: "In the end, it may come down to a matter of semantics, Willadsen told me. Yes, he is pretty sure that humans will be intentionally cloned one day. But, he said, 'it probably will not be called cloning' (p.248).As the Vatican's 2008 Instruction Dignitas Personae on Certain Bioethical Questions,"Cloning is proposed for two basic purposes: reproduction.... Therapeutic cloning...has been proposed as a way of producing embryonic stem cells with a predetermined genetic patrimony in order to overcome the problem of immune system rejection; this is therefore linked to the issue of the use of stem cells...."Human cloning is intrinsically illicit in that, by taking the ethical negativity of techniques of artificial fertilization to their extreme, it seeks to give rise to a new human being without a connection to the act of reciprocal self-giving between the spouses and, more radically, without any link to sexuality. This leads to manipulation abuses gravely injurious to human dignity...."If cloning were to be done for reproduction....The fact that someone would arrogate to himself the right to determine arbitrarily the genetic characteristics of another person represents a grave offense to the dignity of that person as well as to the fundamental equality of all people...."From the ethical point of view, so-called therapeutic cloning is even more serious. To create embryos with the intention of destroying them, even with the intention of helping the sick, is completely incompatible with human dignity, because it makes the existence of a human being at the embryonic stage nothing more than a means to be used and destroyed. It is gravely immoral to sacrifice a human life for therapeutic ends."3 of 4 people found the following review helpful. Prediction is tough, especially when it involves the futureBy BappyThis is a very fine book, even if you don't have a burning desire to make copies of yourself. As Gina K helps us understand, cloning is just a huge metaphor for the complexity and wonder of modern biology. To the media, it's a way to sell papers and ads. To the scientists, it's sometimes a way to get grant money, and sometimes the path to the most important medical advances imaginable. And, to the public, it's an opportunity to get excited and hopeful about the future of man, or resentful and apoplectic about the schemes of these bad, mad, godless scientists. And to the moral arbiters of science (mostly illustrious residents of Cambridge, MA) it's a chance to play premature Cassandras to a poorly-informed and suggestible public.This must have been a difficult book to write, because a very complicated stage must be set; Kolata starts by reviewing the history of cloning, beginning roughly in the 50s with frog cloning (Briggs and King), then passing through whackiness-posing-as-journalism (Rorvik), fraud posing as science (Illmensee) before arriving at genius in the person of a Faust-like Danish veterinarian (Willadsen) and finally the methodical Scottish cloner himself (Wilmut).It's obvious that Kolata's journalist/scientist heart belongs to Willadsen, who is the scientist we all wanted to be when we were grad students. Contemptuous of arbitrary authority and received wisdom, with golden hands and an inborn passion for the mysteries of cell, embryo and organism. Willadsen seems to be the genuine article - he makes me proud to be 1/8th Danish!Read this book to see how science really happens. You'll thank me.10 of 12 people found the following review helpful. Interesting but too sensationalisticBy Ramesh GopalClone: The Road to Dolly... is an interesting book outlining the research that contributed to the creation of the first mammalian clone and its

philosophical implications. There is much in the book to recommend it. It places the work in its correct historical context by describing the chain of discoveries, beginning with those in the early part of this century, that eventually led to Dolly. However, the book is needlessly sensationalistic in the way it describes science and scientists, seeming to draw parallels with the worlds of power politics and showbiz. Science is really a more subdued and low-key affair - as exemplified by the very lab that created Dolly. My major objection is that the book appears to take as its underlying assumption that the public (or a large segment) is opposed to science and treats its achievements with profound suspicion. I agree that there exists a vocal minority that thinks this way and may have its roots in various fundamentalist movements. However, the majority of people that I have met, while frequently poorly informed, are not antagonistic to science, but rather are interested in enjoying the fruits of its labor. This may be why, as the book says, while various self-styled experts debate the ethics of cloning, infertile couples are lining up for possible medical applications. It is only when the public is either denied the benefits of science, or is not educated about what these benefits may be, that it grows resentful. This issue seems to have been overlooked. On the other hand, comparisons with the atomic bomb are abundant, though meaningless. The bomb has killed thousands and was created for that express purpose. Cloning has created very little and destroyed nothing, except a few egos. Fortunately, although the book begins grimly, it seems to end on a fairly optimistic note, moving away from its opening notions that cloning is an evil, dirty business. The bottom line is that whatever else it may do, cloning does not undermine human dignity. A person's dignity arises from his or her actions, not whether they were born as a twin, testtube baby or clone. We would do well to remember that. To my mind, the most profound line in this book full of lines that compete for that honor is one attributed to a Scottish farmer who says, in some perplexity, 'I don't understand the big deal. A sheep is still a sheep.'

The birth of Dolly -- the world's first clone -- placed in our hands the secret of creation. Few discoveries have so altered our notion of what it means to be human, or presented such a Gordian knot of ethical, spiritual, and scientific questions. Noted science journalist Gina Kolata broke the news nationally in *The New York Times* and was the first reporter to speak with Dr. Ian Wilmut, the embryologist who cloned Dolly. Now Kolata reveals the story behind Dolly, interweaving the social and cultural tales of our fear and fascination with cloning, reaching back nearly a century, with the riveting scientific account of how a clone came to be and the mind-boggling questions Dolly presents for our future. *Clone* is a compelling blend of scientific suspense, dreams dashed, and frauds exposed, with provocative philosophical questions and an astute assessment of why Dolly's birth was only possible now. Like *The Making of the Atomic Bomb*, *Lucy*, and *Chaos*, this book gives us a window on history in the making, and an understanding of its profound effect on our lives.

.com In February 1997 a group of Scottish livestock scientists announced that they had cloned a lamb using a cell from an adult sheep. "When the time comes to write the history of our age, this quiet birth, the creation of this little lamb, will stand out," says award-winning science writer Gina Kolata. In *Clone*, she gives a clear account of the technical background to Dolly's birth, but what makes the book really shine is her coverage of the history and social conflicts of cloning. She weaves stories of fraud, scandal, irreproducible results, and pig-headed determination into a solid framework of philosophy, science, and ethics. From *Library Journal* In this readable history of cloning, *New York Times* science writer Kolata focuses on the controversial aspects of the issue. An indispensable work for high school, public, and college libraries. (LJ 11/15/97) Copyright 1999 Reed Business Information, Inc. From *The New England Journal of Medicine* In February 27, 1997, Ian Wilmut and his colleagues at an animal-husbandry research center near Edinburgh, Scotland, announced in *Nature* the birth of Dolly. This was no mere birth notice: Dolly was produced by fusing the nucleus of a cell from the udder of a six-year-old sheep with an unfertilized, nucleus-free egg from another sheep. For the first time, the restricted genetic information in the nucleus of a differentiated mammalian cell was reprogrammed to reveal everything it knew about forming all the other cells of the body. In effect, cellular time was reversed -- a terminally differentiated cell reverted to its primordial ancestor. Moreover, Dolly also showed that chemical messages in the cytoplasm of an unfertilized egg can awaken the genes that differentiation puts to sleep. The identification of the ovular messages that repeal the genetic injunctions imposed by differentiation could yield immense benefits to medicine. Dolly is an identical twin of the anonymous animal that donated the nucleus, but at her birth she was six years younger than her sister. Therein lies the rub. Dolly is a clone, and because, imprisoned in her surrogate womb, Dolly nevertheless had escaped the iron grip of sexual reproduction, she ignited an immediate worldwide reaction. Within weeks of the publication of the paper by Wilmut and his colleagues, politicians in Washington began drawing up prohibitive legislation, and in some European countries and China the cloning of humans was declared illegal. Well-known ethicists decried the experiment on talk shows -- Dolly reminded several commentators of Aldous Huxley's *Brave New World*, *The Boys from Brazil*, which involved a plot to produce clones of Adolf Hitler, or Woody Allen's *Sleeper*, in which the cloning of a dictator was attempted from his nose. Meanwhile, Clonaid, a company based in the Bahamas, was proposing to clone humans for a mere \$200,000 a copy. Through all the uproar and self-righteous posturing, the science that created Dolly and the potential benefits of cloning mammals

were neglected or seriously misunderstood. Few who spoke out publicly recognized the possible practical applications of the technique and how cloning from an adult nucleus could advance our understanding of normal and abnormal differentiation, aging, and cancer. Wilmut's motivation had nothing to do with cloning humans. He wanted to improve livestock and make genetically engineered animal factories that would produce medically useful proteins, such as clotting factors. Indeed, 10 months after Wilmut's paper was published, Schnieke et al. (*Science* 1997;278:2130-3) reported that they had fused enucleated ovine oocytes with fetal fibroblasts -- not with adult cells, as Wilmut had done -- that had been transfected with the gene for factor IX linked to the promoter for the (beta)-lactoglobulin gene for the purpose of producing sheep that would secrete the scarce human clotting factor in their milk. The two books under review deal with these fascinating matters in different ways. In *Clone*, Gina Kolata, a well-known science writer for the *New York Times*, takes us on a breezy, journalistic tour of cloning. The writing is vivid and clear. Anyone who reads her book will come away with an appreciation of the main scientific and ethical issues. She will engage you with the historical background and sharply etched portraits of the leading figures in the drama. As a journalist, Kolata has an ear for chitchat and scandal. For example, she gives us an extended account of David Rorvik's book *In His Image: The Cloning of a Man* (Philadelphia: J.P. Lippincott, 1978), which was advertised as a true chronicle of the cloning of a mysterious, unnamed millionaire; the publisher ultimately admitted that it was a hoax. And she tells in detail the story of Karl Illmensee, who fooled the scientific community for years with his claim to have cloned mice by nuclear transfer. The relevance of these lengthy asides to the main issues is dubious, but *Clone* is worthwhile as an entertaining summary of the biology of the new millennium. In *Remaking Eden* Lee Silver, a professor in the Department of Molecular Biology at Princeton University, gives us a panoramic view of molecular genetics, sexual reproduction, in vitro fertilization, and cloning. His book is an outstanding achievement. Silver addresses the uninitiated with clear writing and straightforward explanations of complex phenomena, but experts, especially ethicists and policy makers, will also profit from reading this book. Any physician should find this book remarkable. Silver analyzes the issues soberly, often with provocative examples. Some of his cases are hypothetical; others are drawn from real life. A high point of the book is Silver's analysis of the treatment of Anissa Ayala, a girl with acute myelogenous leukemia who received a bone marrow transplant from her sister; the sister had been deliberately conceived in the hope that her marrow would be histocompatible with Anissa's. The new sister's marrow was indeed a match, and five years later Anissa, now a hematopoietic chimera, appeared to be cured. Silver's answer to prominent ethicists who strongly objected to this procedure is simple: what's wrong with it when the motive is love and affection? Who had the right to say that Marissa, the new sister, would not be loved for herself as much as Anissa? Silver's approach to ethical issues related to cloning and in vitro fertilization is refreshing: no nonsense, no pontificating, just the facts, just common sense. He makes his position clear with the question, "Why is it that so many politicians seem to care so much about cloning but so little about the welfare of children in general?" According to legend, 1000 years ago King Canute tried to hold back the tides. Those who believe that they can limit the progress of science -- or any other branch of human knowledge -- will repeat Canute's error. Barbara Tuchman's classic *A Distant Mirror* (New York: Alfred A. Knopf, 1978) and a recent translation of Johan Huizinga's magisterial *The Autumn of the Middle Ages* (Chicago: University of Chicago Press, 1996) give us an extraordinary picture of the superstition, ignorance, folly, and pestilence that ruled Western Europe 500 years ago. Five hundred years later we have arrived at Dolly, and there is no way of turning back. Instead, the imperative is to use our knowledge with the compassion advocated by Lee Silver. Gina Kolata is wrong when she emphasizes that by producing Dolly, Wilmut was "breaking the laws of nature." Nature's laws cannot be broken. What we must understand is that Wilmut's feat revealed, rather than broke, the laws of nature. The remarkable potential of this revelation is a cause for hope, not despair. ed by Robert S. Schwartz, M.D. Copyright 1998 Massachusetts Medical Society. All rights reserved. The *New England Journal of Medicine* is a registered trademark of the MMS.