

Book Reviews

Rita Hoots

Department Editor

CLONING

Clone: The Road to Dolly, and the Path Ahead. By Gina Kolata. 1998. William Morrow and Company, Inc. (1350 Avenue of the Americas, New York, NY 10019). 276 pp. Hardback \$23.00.

 In *Clone*, Gina Kolata, science writer for *The New York Times*, presents an engaging 10 chapter overview of the events leading to one of the prominent stories in biology to end the 20th century, the cloning of the now famous sheep called Dolly. After breaking the announcement of Dolly to the general public on the cover page of *The New York Times*, Kolata was the first reporter to speak to Ian Wilmut, the embryologist from the Roslin Institute in Scotland, who lead the research team that produced Dolly.

Clone begins with a post-Dolly chapter. In the context of a right to reproductive freedom, this chapter provides a glimpse of some concerns and possible benefits of human cloning by comparing and contrasting ethical issues associated with cloning to similar issues associated with assisted reproductive technologies. Gina Kolata sets the stage for the story of Dolly by quoting scientists, clergy, ethicists, theologians and philosophers whose opinions are well summarized by her

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own quote: "Yet if there is one lesson of cloning it is that there is no uniformly accepted way to think about the ethical questions that it elicits, and no agreement, even among the most thoughtful and well-informed commentators, about what is right and what is wrong."

Seven chapters of the book are dedicated to a survey of pioneering scientists and their significant discoveries in embryology that eventually formed the scientific framework for the nuclear transplantation experiments which produced Dolly. Kolata presents an accurate saga of the scientific methodology and the people behind the work which ultimately made Dolly possible. One amusing theme incorporated throughout *Clone* is Gina Kolata's humorous and all too accurate description of the eccentric quirks of scientists, the vagarious nature of graduate training in science, and the rigors of establishing one's position in a research discipline.

In addition to exploring landmark scientific events in the field of embryology, *Clone* also considers how fabricated reports of cloning served to raise doubts among the general public and scientists alike that cloning would ever be possible. Kolata cites examples of how the emergence of ethical movements of the 1970s, the advent of recombinant DNA technologies, the infamous Tuskegee study, and pop culture movies such as "The Boys From Brazil" and "The Island of Dr. Moreau" have contributed to public skepticism of science and falsely, perhaps, alerted the public to possible misuses of science. She suggests that how society responds to human cloning may in fact reflect society's attitudes toward science, scientists, technology, and the general public's position of science in the world. Kolata poses the questions: "Do we see science as a threat or a promise? Are scientists sages or villains? Have scientists changed over the years from natural philosophers to technologists focused on the next trick that can be played on nature?"

Chapters eight (The Road to Dolly) and nine (Taken by Surprise) chronicle Ian Wilmut's training as a scientist and

describe the experiments that Wilmut and Keith Campbell performed. Discussions from previous chapters are interwoven to tell a wonderful story of how the science behind cloning cows, sheep and pigs by subdividing the cells of early embryos, and the motivations of the scientists who performed the work, ultimately led Ian Wilmut and Keith Campbell to clone Dolly.

The reader is treated to the human element of both Ian Wilmut's and Keith Campbell's emotions during sleepless evenings as they painstakingly prepared for the birth of Dolly. Wilmut's and Campbell's anticlimactic response to Dolly's arrival is emphasized by the fact that neither scientist was prepared to fully appreciate the implications of their work, and that, initially, cloning from differentiated embryonic cells was treated with blind indifference by most scientists, ethicists and reporters.

Clone concludes with a chapter titled, The Path Ahead, in which Kolata contemplates future possibilities for human cloning and cloning-related technologies. Gina Kolata presents her work in an interesting manner that is both easily understood by the casual reader of science and appreciated by the science professional. *Clone* is a very enjoyable and informative book that I recommend to anyone interested in developing an informed opinion on cloning.

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INSECTS

Insects Through the Seasons. By Gilbert Waldbauer. 1998. Harvard University Press (79 Garden St., Cambridge, MA 02138). 289 pp. Paperback \$14.95.

 In a sense the title of this book is misleading as the author includes a wealth of other interesting species of animals and plants as they relate to insects. In addition he includes examples of many analogous behaviors and structural adaptations of other species in comparison with