

Animal Cloning The Science Of Nuclear Transfer

Explores differing views cloning and uses the opposing viewpoints format to increase proficiency in writing critical essays, with emphasis on organizing ideas and arguments in the five-paragraph essay and in longer pieces of writing.

As an unabashed dog lover, Alexandra Horowitz is naturally curious about what her dog thinks and what she knows. As a cognitive scientist she is intent on understanding the minds of animals who cannot say what they know or feel. This is a fresh look at the world of dogs -- from the dog's point of view. The book introduces the reader to the science of the dog -- their perceptual and cognitive Abilities -- and uses that introduction to draw a picture of what it might be like to be a dog. It answers questions no other dog book can -- such as: What is a dog's sense of time? Does she miss me? Want friends? Know when she's been bad? Horowitz's journey, and the insights she uncovered from studying her own dog, Pumpernickel, allowed her to understand her dog better, and appreciate her more through that understanding. The reader will be able to do the same with their own dog. This is not another dog training book. Instead, Inside of a Dog will allow dog owners to look at their pets' behaviour in a different, and revealing light, enabling them to understand their dogs and enjoy their relationship even more. Few avenues of scientific inquiry raise more thorny ethical questions than the cloning of human beings, a radical way to control our DNA. In August 2001, in conjunction with his decision to permit limited federal funding for stem-cell research, President George W. Bush created the President's Council on Bioethics to address the ethical ramifications of biomedical innovation. Over the past year the Council, whose members comprise an all-star team of leading scientists, doctors, ethicists, lawyers, humanists, and theologians, has discussed and debated the pros and cons of cloning, whether to produce children or to aid in scientific research. This book is its insightful and thought-provoking report. The questions the Council members confronted do not have easy answers, and they did not seek to hide their differences behind an artificial consensus. Rather, the Council decided to allow each side to make its own best case, so that the American people can think about and debate these questions, which go to the heart of what it means to be a human being. Just as the dawn of the atomic age created ethical dilemmas for the United States, cloning presents us with similar quandaries that we are sure to wrestle with for decades to come.

Animal cloning has developed quickly since the birth of Dolly the sheep. Yet many of the first questions to be raised still need to be answered. What do Dolly and her fellow mouse, cow, pig, goat and monkey clones mean for science? And for society? Why do so many people respond so fearfully to cloning? What are the ethical issues raised by cloning animals, and in the future, humans? How are the makers of public policy coping with the stunning fact that an entire animal can be reconstructed from a single adult cell? And that humans might well be next? The Cloning Source Book addresses all of these questions in a way that is unique in the cloning literature, by grounding what is effectively an interdisciplinary conversation in solid science. In the first section of the book, the key scientists responsible for the early and crucial developments in cloning speak to us directly, and other scientists evaluate and comment on these developments. The second section explores the context of cloning and includes sociological, mythological, and historical perspectives on science, ethics, and policy. The authors also examine the media's treatment of the Dolly story and its aftermath, both in the United States and in Britain. The third section, on ethics, contains a broad range of papers written by some of the major commentators in the field. The fourth section addresses legal and policy issues. It features individual and collective contributions by those who have actually shaped public policy on reproductive cloning, therapeutic cloning, and similarly contentious bioethical issues in the United States, Britain, and the European Union. Animal cloning continues for agricultural and medicinal purposes, the latter in combination with transgenics. Human cloning for therapeutic purposes has recently been made legal in Britain. The goal is to produce an early embryo and then derive stem cells that are immunologically matched to the donor. Two human reproductive cloning projects have been announced, and there are almost certainly others about which we know nothing. Sooner or later a cloned human will be born. Many lessons can be learned from the cloning experience. Most importantly, there needs to be a public conversation about the permissible uses of new and morally murky technologies. Scientists, journalists, ethicists and policy makers all have roles to play, but cutting-edge science is everybody's business. The Cloning Sourcebook provides the tools required for us to participate in shaping our own futures.

Building the Three Gorges Dam

Science-Based Concerns

Four Fallacies and Their Legal Consequences

Cloning Pets

Principles of Cloning

Responsible Science Or Technomadness?

Discusses the history of the concept of cloning and the pros and cons of cloning animals and humans.

Recent scientific breakthroughs, celebrity patient advocates, and conflicting religious beliefs have come together to bring the state of stem cell research—specifically embryonic stem cell research—into the political crosshairs. President Bush's watershed policy statement allows federal funding for embryonic stem cell research but only on a limited number of stem cell lines. Millions of Americans could be affected by the continuing political debate among policymakers and the public. *Stem Cells and the Future of Regenerative Medicine* provides a deeper exploration of the biological, ethical, and funding questions prompted by the therapeutic potential of undifferentiated human cells. In terms accessible to lay readers, the book summarizes what we know about adult and embryonic stem cells and discusses how to go about the transition from mouse studies to research that has therapeutic implications for people. Perhaps most important, *Stem Cells and the Future of Regenerative Medicine* also provides an overview of the moral and ethical problems that arise from the use of embryonic stem cells. This timely book compares the impact of public and private research funding and discusses approaches to appropriate research oversight. Based on the insights of leading scientists, ethicists, and other authorities, the book offers authoritative recommendations regarding the use of existing stem cell lines versus new lines in research, the important role of the federal government in this field of research, and other fundamental issues.

A discussion of all the key issues in the use of human pluripotent stem cells for treating degenerative diseases or for replacing tissues lost from trauma. On the practical side, the topics range from the problems of deriving human embryonic stem cells and driving their differentiation along specific lineages, regulating their development into mature cells, and bringing stem cell therapy to clinical trials. Regulatory issues are addressed in discussions of the ethical debate surrounding the derivation of human embryonic stem cells and the current policies governing their use in the United States and abroad, including the rules and conditions regulating federal funding and questions of intellectual property.

Principles of Cloning, Second Edition is the fully revised edition of the authoritative book on

the science of cloning. The book presents the basic biological mechanisms of how cloning works and progresses to discuss current and potential applications in basic biology, agriculture, biotechnology, and medicine. Beginning with the history and theory behind cloning, the book goes on to examine methods of micromanipulation, nuclear transfer, genetic modification, and pregnancy and neonatal care of cloned animals. The cloning of various species—including mice, sheep, cattle, and non-mammals—is considered as well. The Editors have been involved in a number of breakthroughs using cloning technique, including the first demonstration that cloning works in differentiated cells done by the Recipient of the 2012 Nobel Prize for Physiology or Medicine – Dr John Gurdon; the cloning of the first mammal from a somatic cell – Drs Keith Campbell and Ian Wilmut; the demonstration that cloning can reset the biological clock – Drs Michael West and Robert Lanza; the demonstration that a terminally differentiated cell can give rise to a whole new individual – Dr Rudolf Jaenisch and the cloning of the first transgenic bovine from a differentiated cell – Dr Jose Cibelli. The majority of the contributing authors are the principal investigators on each of the animal species cloned to date and are expertly qualified to present the state-of-the-art information in their respective areas. First and most comprehensive book on animal cloning, 100% revised Describes an in-depth analysis of current limitations of the technology and research areas to explore Offers cloning applications on basic biology, agriculture, biotechnology, and medicine

Cloning Wild Life

Cuddling Up to Biotech's Brave New Beasts

Cloning

Epigenetic Risks of Cloning

Islamic Jurisprudence in the Writings of Sayf al-Din al-Amidi

The Report of the President's Council On Bioethics

In the twenty-first century, because of climate change and other human activities, many animal species have become extinct, and many others are at risk of extinction. Once they are gone, we cannot bring them back—or can we? With techniques such as cloning, scientists want to reverse extinction and return lost species to the wild. Some scientists want to create clones of recently extinct animals, while others want to make new hybrid animals. Many people are opposed to de-extinction. Some critics say that the work diverts attention from efforts to save species that are endangered. Others say that de-extinction amounts to scientists "playing God." Explore the pros and cons of de-extinction and the cutting-

edge science that makes it possible.

The natural world is marked by an ever-increasing loss of varied habitats, a growing number of species extinctions, and a full range of new kinds of dilemmas posed by global warming. At the same time, humans are also working to actively shape this natural world through contemporary bioscience and biotechnology. In *Cloning Wild Life*, Carrie Friese posits that cloned endangered animals in zoos sit at the apex of these two trends, as humans seek a scientific solution to environmental crisis. Often fraught with controversy, cloning technologies, Friese argues, significantly affect our conceptualizations of and engagements with wildlife and nature. By studying animals at different locations, Friese explores the human practices surrounding the cloning of endangered animals. She visits zoos—the San Diego Zoological Park, the Audubon Center in New Orleans, and the Zoological Society of London—to see cloning and related practices in action, as well as attending academic and medical conferences and interviewing scientists, conservationists, and zookeepers involved in cloning. Ultimately, she concludes that the act of recalibrating nature through science is what most disturbs us about cloning animals in captivity, revealing that debates over cloning become, in the end, a site of political struggle between different human groups. Moreover, Friese explores the implications of the social role that animals at the zoo play in the first place—how they are viewed, consumed, and used by humans for our own needs. A unique study uniting sociology and the study of science and technology, *Cloning Wild Life* demonstrates just how much bioscience reproduces and changes our ideas about the meaning of life itself.

Hard Science Fiction Films that Predict the Future “ As the breakneck advance of technology takes us into a world that is both exciting and menacing, sci-fi films give us an inkling of what is to come, and what we should avoid. ” —Seth Shostak, senior astronomer at the SETI Institute, and host of Big Picture Science #1 Best Seller in Nanotechnology and Computers & Technology Dr. Andrew Maynard, physicist and leading expert on socially responsible development of emerging and converging technologies, examines science fiction movies and brings them to life. Advances in science and technology are radically changing our world. *Films from the Future* is an essential guide to navigating a future dominated by complex and powerful new technologies. The jump from room-filling processors to pocket-size super computers is just the beginning. Artificial intelligence, gene manipulation, cloning, and inter-planet travel are all ideas that seemed like fairy tales but a few years ago. And now their possibility is very much here. But are we ready to handle these advances? As Maynard explains, “ Viewed in the right way?and with a good dose of critical thinking?science fiction movies can help us think about and prepare for the social consequences of technologies we don ’ t yet have, but that are coming faster than we imagine. ” *Films from the Future* looks at twelve movies that take readers on a journey through the worlds of biological and genetic manipulation, human enhancement, cyber technologies, and nanotechnology. Gain a

broader understanding of the complex relationship between science and society. The movies include old and new, and the familiar and unfamiliar, to provide a unique, entertaining, and ultimately transformative take on the power and responsibilities of emerging technologies. If you have read books such as *The Book of Why*, *The Science of Interstellar*, or *The Future of Humanity*, you will love *Films from the Future*.

From this collection, readers will gain a clearer picture of the history of cloning in agriculture and animal science, the various biological procedures that are encompassed by the term "cloning," the philosophical arguments in support of and opposed to cloning humans, and the considerations that should inform discussions about public policy matters related to cloning research and to human cloning itself.

Human Cloning

Safety of Genetically Engineered Foods

The Human Cloning Debate

Designer Animals

Should Scientists Pursue Cloning?

What Dogs See, Smell, and Know

Unmasks the role of psychological essentialism in cloning bans, explaining how intuitions cause individuals to act against their own values.

This series introduces real-world science examples that explain how scientists go about their work. By using newsworthy stories from the world of science and first-hand accounts that communicate excitement and present scientists as role models, this series really brings science to life.

The creation of genetically identical organisms, referred to as cloning has propelled researchers to attempt to clone several organisms from microbes to plants to animals. The creation of "Dolly", the first cloned mammal, a sheep where an adult cell was used to produce an offspring instead of an embryo that develops into an organism ushered in a race to clone several other animals. The scope of animal cloning includes the production of genetically engineered organisms that have specific desired traits, the principles of molecular pharming where cloned animals produce therapeutics in their products, xenotransplantation, pharmacological testing, medical uses like study of diseases and potential cures, to name a few. Certain attempts are on to revive extinct animals. (Remember Jurassic Park?) This book covers principles and tools involved in animal cloning along with various animals that have been cloned and their potentials in biotechnology. The book shall also include various ethical issues associated with this field and summarize the work done in cloning. Threaders must note that these issues and regulations have been quoted verbatim so that the meaning conveyed does not change.

Examines the scientific, legal, and ethical issues surrounding animal cloning technology.

The Science of Nuclear Transfer

The Promise and Perils of Human Cloning

Approaches to Assessing Unintended Health Effects

Animal Transgenesis and Cloning

Animal Cloning

Ethical Aspects of Animal Cloning for Food Supply

Someday soon, if it hasn't happened in secret already, the first cloned human will be born and mankind will embark on a scientific and moral journey whose destination cannot be foretold. In *A Clone of Your Own?*, Arlene Judith Klotzko describes the new world of possibilities that can be glimpsed over the horizon. In a lucid and engaging narrative, she explains that the technology to create clones of living beings already exists, inaugurated in 1996 by Dolly the sheep, the first mammal cloned from a single adult cell. Dolly was the culmination of a long scientific quest to understand the puzzle of our development from one cell into a complex organism -- the outcome of a 'fantastic experiment' envisioned six decades before her birth. Scientists have since cloned mice, cows, goats, pigs, rabbits, horses, rats, a cat and a mule. Using the same laboratory tools and techniques, other researchers are trying to grow embryos, cloned from a single cell of a human being. Their goal is not to make copies of existing people, but to derive stem cells, the infinitely malleable raw material from which they hope to design therapies for currently untreatable diseases and the afflictions of old age. Our fascination with cloning is about much more than science and its extraordinary medical implications. In riveting prose, full of allusions to literature, psychology, art, music, and the cinema, Klotzko shows why the prospect of human cloning triggers our dearest hopes and especially our darkest fears, forcing us to ponder anew what it means to be human. And what it would be like to have 'a clone of your own'.

An argument for the benefits of cloning, co-written by a scientist whose team was responsible for a famous cloned sheep, presents the reasons for his opposition to the cloning of humans and explains that cloning technology can be ethically applied to free families from serious hereditary diseases. Reprint. An insider's view on bringing extinct species back to life Could extinct species, like mammoths and passenger pigeons, be brought back to life? In *How to Clone a Mammoth*, Beth Shapiro, an evolutionary biologist and pioneer in ancient DNA research, addresses this intriguing question by walking readers through the astonishing and controversial process of de-extinction. From deciding which species should be restored to anticipating how revived populations might be overseen in the wild, Shapiro vividly explores the extraordinary cutting-edge science that is being used to resurrect the past. Considering de-extinction's practical benefits and ethical challenges, Shapiro argues that the overarching goal should be the revitalization and stabilization of contemporary ecosystems. Looking at the very real and compelling science behind an idea once seen as science fiction, *How to Clone a Mammoth* demonstrates how de-extinction will redefine conservation's future.

Animal Cloning The Science of Nuclear Transfer Infobase Publishing

The Search for God's Law

Science and Society

The Technology and Morality of Sci-Fi Movies

Animal Biotechnology

In the Light of Evolution

The Science and Ethics of Cloning

Assists policymakers in evaluating the appropriate scientific methods for detecting unintended changes in food and assessing the potential for adverse health effects from genetically modified products. In this book, the committee recommended that greater scrutiny should be given to foods containing new compounds or unusual amounts of naturally occurring substances, regardless of the method used to create them. The book offers a framework to guide federal agencies in selecting the route of safety assessment. It identifies and recommends several pre- and post-market approaches to guide the assessment of unintended compositional changes that could result from genetically modified foods and research avenues to fill the knowledge gaps.

Winner of 2014 AAAS/Subaru SB&F Prize for Best Young Adult Science Book Longlisted for the PEN/E.O. Wilson Literary Science Writing Award One of Nature's Summer Book Picks One of Publishers Weekly's Top Ten Spring 2013 Science Books For centuries, we've toyed with our creature companions, breeding dogs that herd and hunt, housecats that look like tigers, and teacup pigs that fit snugly in our handbags. But what happens when we take animal alteration a step further, engineering a cat that glows green under ultraviolet light or cloning the beloved family Labrador? Science has given us a whole new toolbox for tinkering with life. How are we using it? In *Frankenstein's Cat*, the journalist Emily Anthes takes us from petri dish to pet store as she explores how biotechnology is shaping the future of our furry and feathered friends. As she ventures from bucolic barnyards to a "frozen zoo" where scientists are storing DNA from the planet's most exotic creatures, she discovers how we can use cloning to protect endangered species, craft prosthetics to save injured animals, and employ genetic engineering to supply farms with disease-resistant livestock. Along the way, we meet some of the animals that are ushering in this astonishing age of enhancement, including sensor-wearing seals, cyborg beetles, a bionic bulldog, and the world's first cloned cat. Through her encounters with scientists, conservationists, ethicists, and entrepreneurs, Anthes reveals that while some of our interventions may be trivial (behold: the GloFish), others could improve the lives of many species—including our own. So what does biotechnology really mean for the world's wild things? And what do our brave new beasts tell us about ourselves? With keen insight and her trademark spunk, Anthes highlights both the peril and the promise of our scientific superpowers, taking us on an adventure into a world where our grandest science fiction fantasies are fast becoming reality.

Designed to be a concise, balanced introduction to this dynamic subject, covering key issues and current techniques currently used in animal transgenesis and cloning. Provides the essentials of the subject, from the molecular basis of gene structure and function to therapeutic gene cloning in humans. Social and ethical implications of this important area of

research are also considered.

Biodiversity-the genetic variety of life-is an exuberant product of the evolutionary past, a vast human-supportive resource (aesthetic, intellectual, and material) of the present, and a rich legacy to cherish and preserve for the future. Two urgent challenges, and opportunities, for 21st-century science are to gain deeper insights into the evolutionary processes that foster biotic diversity, and to translate that understanding into workable solutions for the regional and global crises that biodiversity currently faces. A grasp of evolutionary principles and processes is important in other societal arenas as well, such as education, medicine, sociology, and other applied fields including agriculture, pharmacology, and biotechnology. The ramifications of evolutionary thought also extend into learned realms traditionally reserved for philosophy and religion. The central goal of the In the Light of Evolution (ILE) series is to promote the evolutionary sciences through state-of-the-art colloquia-in the series of Arthur M. Sackler colloquia sponsored by the National Academy of Sciences-and their published proceedings. Each installment explores evolutionary perspectives on a particular biological topic that is scientifically intriguing but also has special relevance to contemporary societal issues or challenges. This tenth and final edition of the In the Light of Evolution series focuses on recent developments in phylogeographic research and their relevance to past accomplishments and future research directions.

Stem Cells and the Future of Regenerative Medicine

Volume X: Comparative Phylogeography

The Science of De-Extinction

After Dolly

Inside of a Dog

De-Extinction

To many, cloning is the stuff of science fiction. However, for decades it has been an important piece of scientific development. This guidebook starts by looking at the foundational scientific theories that led to the exact replication of molecules, cells, and even organisms. Drawing on primary sources, this book gives biographical information on key players in the field of cloning and traces how their work built upon that of their predecessors, culminating in the successful cloning of a sheep. It looks at how cloning technology has advanced and is used today. Students will hone their critical thinking skills by exploring the ethical debate behind the use of cloning technology.

This book provides a detailed introduction to the cloning of both plants and animals and discusses the important social, ethical, political, technical, and other issues related to the practice. • Offers an informed perspective on cloning and its potential applications in everyday life and elsewhere • Includes profiles of key individuals and organizations related to the field of cloning, a Perspectives chapter, a chronology of important events in the history of cloning, and a glossary of key terms that strengthen the reader's understanding of the topic • Supplies the necessary historical background and context for readers to understand why cloning of both plants and animals is of great importance—and why cloning

technology is even more critical when it involves human beings

From the pet that we live with and care for, to news items such as animal cloning, and the use of various creatures in film, television and advertising, animals are a constant presence in our lives. Animal is a timely overview of the many ways in which we live with animals, and assesses many of the paradoxes of our relationships with them: for example, why is the pet that sits by the dinner table never for eating? Examining novels such as Charlotte's Web, films such as Old Yeller and Babe, science and advertising, fashion and philosophy, Animal also evaluates the ways in which we think about animals and challenges a number of the assumptions we hold. Why is it, for example, that animals are such a constant presence in children's literature? And what does it mean to wear fake fur? Is fake fur an ethical avoidance of animal suffering, or merely a sanitized version of the unacceptable use of animals as clothing? Neither evangelical nor proselytizing, Animal invites the reader to think beyond the boundaries of a subject that has a direct effect on our day-to-day lives.

Presents diverse opinions on human and animal cloning from both public policy and scientific standpoints and offers a comparison of religious views on cloning from ten religious traditions

How to Clone a Mammoth

A Clone of Your Own?

Animal

A Reference Handbook

Cloning: A Reference Handbook

With its high-interest, magazine-like design and approach, this series teaches science in a way that appeals to teenagers. Digestible chunks of information, along with clear introductions and summaries of content in each chapter, encourage reluctant readers to approach, read, and learn important science content.

Genetic-based animal biotechnology has produced new food and pharmaceutical products and promises many more advances to benefit humankind. These exciting prospects are accompanied by considerable unease, however, about matters such as safety and ethics.

This book identifies science-based and policy-related concerns about animal biotechnology—key issues that must be resolved before the new breakthroughs can reach their potential. The book includes a short history of the field and provides understandable definitions of terms like cloning. Looking at technologies on the near

horizon, the authors discuss what we know and what we fear about their effects—the inadvertent release of dangerous microorganisms, the safety of products derived from biotechnology, the impact of genetically engineered animals on their environment. In addition to these concerns, the book explores animal welfare concerns, and our societal and institutional capacity to manage and regulate the technology and its products. This accessible volume will be important to everyone interested in the implications of the use of animal biotechnology.

Scholars praised the 1992 edition of this book as a groundbreaking intellectual treatment of Islamic jurisprudence. Bernard Weiss's revised edition brings to life Sayf al-Din al-Amidi's classic exposition of the methodologies through which Muslim scholars have constructed their understandings of the divine law. Weiss's new introduction provides an overview of Amidi's jurisprudence that facilitates deeper comprehension of the challenging dialect of the text. This edition includes an in-depth analysis of the nature of language and the ways in which it mediates the law, while shaping it at the same time. An index has been added.

Designer Animals is an in-depth study of the debates surrounding the development of animal biotechnology, which is quickly emerging out of the laboratory and into the commercial marketplace. This book innovatively combines expert analysis on the technology's economic, professional, ethical, and religious implications while remaining firmly grounded in the 'real world' political environment in which the issue is played out. Designer Animals uses non-technical language to explore the science behind animal biotechnology and the ethical frameworks at play in its surrounding debates. By investigating the interests of major stakeholders, including researchers on the cutting edge of science; mainstream and 'alternative' agriculture organizations; the animal welfare movement; and health care providers, patients, and researchers, the contributors illuminate the most important points of agreement and disagreement on this hotly contested topic.

Human Embryonic Stem Cells

Scientific and Medical Aspects of Human Reproductive Cloning

Frankenstein's Cat

The Science of Bringing Lost Species Back to Life

Science, Ethics, and Public Policy

Zoos, Captivity, and the Future of Endangered Animals

Cloning has the potential to be an extremely valuable tool across many fields. In agriculture, the reproductive cloning of farm animals could prove to be advantageous. In clinical medicine, the employment of therapeutic cloning for cell, tissue, and organ replacement appears to be imminent. However, as with any advancement that is poised to touch human lives, the process of cloning must be looked at through the lens of the medical community's obligation to do no harm. *Epigenetic Risks of Cloning* includes contributions from 32 leading researchers who are intimately involved with various aspects of cloning. At the frontlines of this science, they are best positioned to explain what is really occurring. With chapters dedicated to each of the animal models being employed for experimentation, the text presents a detailed accounting of cloning methods, an objective review of current findings, and an even-handed discussion of potential concerns. While procedures utilizing a variety of somatic cell types to create cloned animals have proven to be repeatable, efficient consistency has proven to be elusive at best. Less than four percent of reconstructed embryos typically develop to adulthood. This low success rate is the cumulative result of inefficiencies occurring at every stage of development.

Epigenetic Risks of Cloning considers the very real consequences of those inefficiencies. In addition to embryonic loss, cloning experiments have experienced very high rates of fetal, perinatal, and neonatal loss, as well as the production of abnormal offspring. At present, there is a legitimate concern that the propensity for epigenetic errors could be paralleled in human embryos. This book offers an excellent opportunity to become acquainted with the current state of cloning, both the methods being utilized, as well as the risks being realized. Since Scottish biologist Ian Wilmut's 1997 cloning of Dolly the sheep, mice, cattle, goats, pigs, cats, mules, horses, and most recently, rats have joined the list of cloned animals, pushing the possibilities for scientific manipulation of life to new extremes. The first book to present Wilmut's own thoughts on the troubling ramifications of this technology, this new edition also contains discussions about the advantages and disadvantages of cloning, stem cell research, and a survey of religious perspectives.

Human reproductive cloning is an assisted reproductive technology that would be carried out with the goal of creating a newborn genetically identical to another human being. It is currently the subject of much debate around the world, involving a variety of ethical, religious, societal, scientific, and medical issues. Scientific and

Medical Aspects of Human Reproductive Cloning considers the scientific and medical sides of this issue, plus ethical issues that pertain to human-subjects research. Based on experience with reproductive cloning in animals, the report concludes that human reproductive cloning would be dangerous for the woman, fetus, and newborn, and is likely to fail. The study panel did not address the issue of whether human reproductive cloning, even if it were found to be medically safe, would be "or would not be" acceptable to individuals or society. Michael Ruse and Aryne Sheppard have selected the work of leading scientists, medical ethicist, healthcare specialists, philosophers, and representatives of various religious denominations to create an overview of the many issues raised by this amazing scientific advance.

Mapping the Issues in Animal Biotechnology

Human Cloning and Human Dignity

Films from the Future

The Cloning Sourcebook

As a genre, science fiction has the unique ability to inspire curiosity and deepen the understanding of issues that are facing STEM fields. One of those issues is the possibility of human cloning. This book examines how human cloning has been depicted in science fiction, the development of existing cloning technology, how scientists have used these techniques in the past, and their potential application for the future. Fascinated readers will explore topics such as somatic cell nuclear transfer (SCNT), animal cloning, and the ethical considerations surrounding therapeutic and reproductive cloning in humans.

Tells all about the designing and building of the Three Gorges Dam, as well as the controversies surrounding this massive project.

In nature clones occur naturally in plants, but not in animals. According to the National Human Genome Research Institute, animals must be scientifically manipulated through different processes to create an identical copy of the genetic material, known as cloning. This thought-provoking volume explores the history of cloning, the ethical issues it raises, where research may lead it in the future, and cloning's role in curing diseases, creating custom organs, improving food, and saving animals.

Discusses the differences between therapeutic and reproductive cloning, the science and issues of stem cell research, and the legal and ethical sides of the debate.