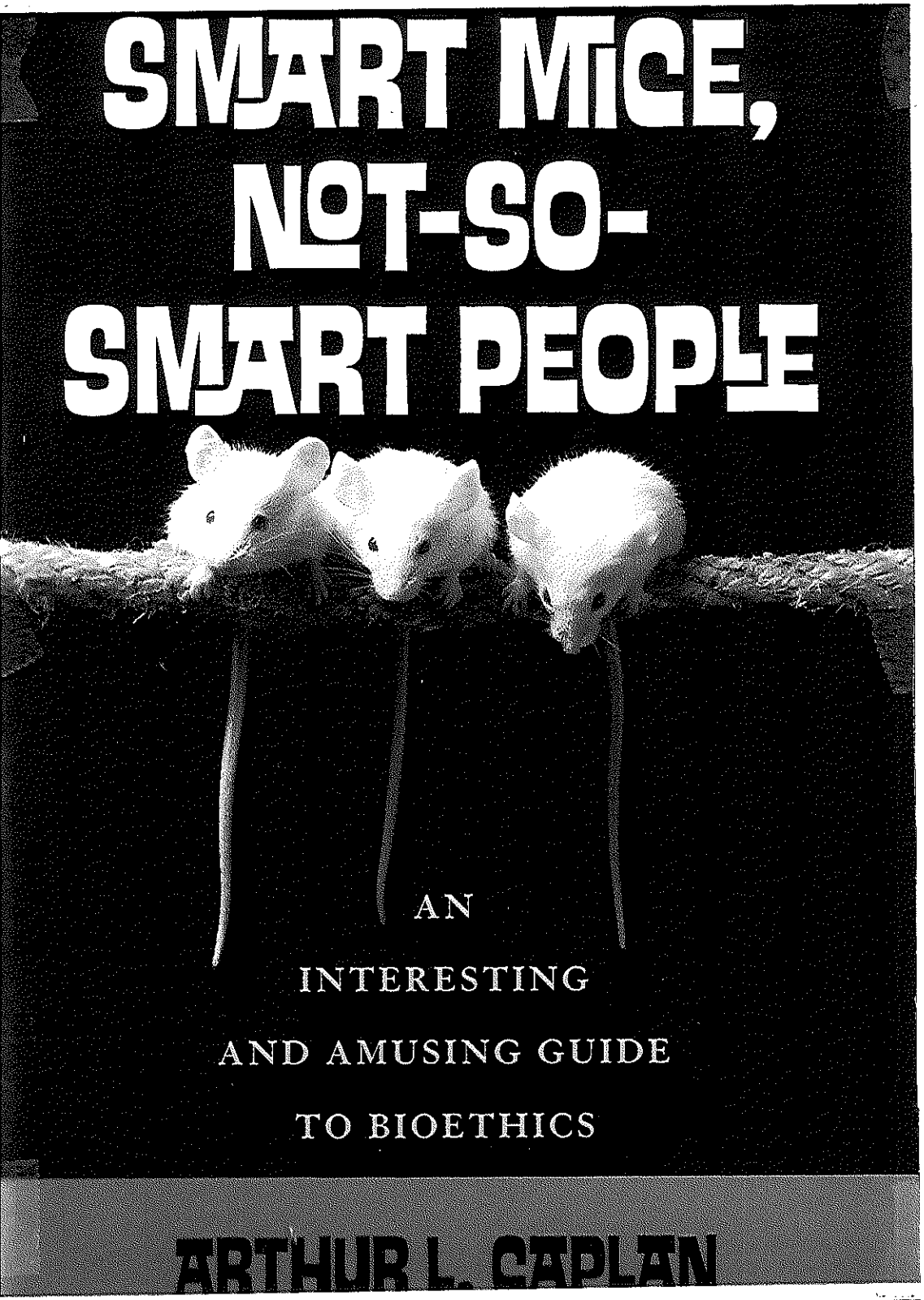


# Cloning: Separating the Science from the Fiction

**AN ALLIANCE OF** abortion opponents, social conservatives, and biotechnology-phobes wants you to believe that human cloning is always unethical, even when it's done for the purpose of finding cures for horrible diseases. It isn't. Understanding the reasons why is very important since the quest to crush cloning is likely to be renewed later this year.

There is so much confusion and misunderstanding surrounding cloning in part because it's tied to our ongoing battle over abortion. Abortion opponents continue to look for any opportunity to secure legal recognition for the personhood of an embryo. When abortion foes like President Bush call for a ban on cloning, they are really using cloning as a tool to try to pry open *Roe v. Wade*. By claiming that cloned embryos are people and that their destruction has to be outlawed, they hope to get legal standing for all embryos. A ban on all forms of cloning would lead to bans on the destruction of all human embryos, cloned or otherwise. That would likely spell the end of abortion as well as in vitro fertilization and most forms of prenatal genetic testing in the United States.

The view that a cloned embryo is a person is, however, wrong. There is a huge difference between a cloned cluster of embryonic cells in a petri dish that could yield disease cures and a baby.

## Cloning Myths

The future of cloning has far more to do with cells than with people. The push for a total ban on cloning rests on several myths and far-fetched scenarios that have gained way too much currency in Congress, the Oval office, and the media.

by Arthur Caplan 2007

**MYTH 1: Cloning for scientific research and cures, known as therapeutic cloning, sends humanity hurtling down the slippery slope toward the inevitable cloning of human beings.**

The best rebuttals to this argument are the thousands of failed attempts to clone animals. Cloning has a terrible track record in making embryos that develop into fetuses, let alone make it to birth.

Attempts to develop cow embryos into animals fail 85 percent of the time, while more than one-third of those clones born alive suffer serious life-threatening health problems. Despite a lot of effort, no one has managed to clone an adult monkey or any other primate. Nearly all experts on primate cloning believe that monkeys and human beings will never be cloned because the biology of primate reproduction is simply unlike that of cats, goats, sheep, and mice.

At present, cloned human beings exist only in science fiction, lurid tabloids, and the boastful and bogus claims of sham scientists and cult kooks. For now, the only destiny for cloned human cells is to help scientists understand and cure diseases.

**MYTH 2: The pursuit of therapeutic cloning will lead to the exploitation of women for their eggs, since billions of eggs will be needed.**

The number off eggs that is needed is grossly exaggerated. To go forward, cloned embryonic stem cell research would need thousands of eggs, not billions.

Women throughout the country are already providing thousands of eggs to infertile couples, and more eggs could be donated by women who just want to help scientists find cures to diseases or disabilities or who simply want to help find cures for their own diseases.

**MYTH 3: What if someday scientists find a way to clone humans safely? Unscrupulous people of means will try to crank out armies of Hitlers or lines of designer babies.**

Despite what Hollywood has to say, Hitler is not coming back, even if we could clone his genes. Genes influence but do not determine personality or behavior. Rather, each of us is shaped by the unique time, place, environment, and circumstances in which we live. To get a Hitler or a Saddam Hussein or any other tyrant, you need more than their genes; you need their mothers, their fathers, and the environment in which they grew up. Science will never be able to clone particular people to order.



If human cloning ever "worked"—which is highly improbable on a mass scale—it could not bring back the dead, create a new pathway to immortality, or furnish the means to create new strains of dictators.

**MYTH 4: There are other techniques for finding cures, including the use of adult stem cells, so there is no need for cloning.**

The reason to clone embryos is that the resulting cells and tissues will have the same genetic makeup as the person they come from. Therefore, they can be transplanted back into the person without fear of rejection.

The reason that adult stem cells do not offer an equally valuable alternative is that embryonic cells are the only cells capable of turning into all the various types of cells that are needed to fight disease, disability, and death. And no one has figured out yet how to get adult stem cells to revert back into this omnipotent state.

If your child is dying, you want all research avenues pursued, and that includes both embryonic and adult stem cell research.

## The Bottom Line

The bottom line is that cloning for cures has the potential to do enormous good by saving the lives of millions of people and ending agony for millions more. These human beings and their loved ones aren't interested in pieties and abstractions and science fiction. They are desperately seeking help for their ailments, and they need to have medical scientists free to pursue those answers and cures. Banning all human cloning would be a highly unethical thing to do.

Rather than shackle American scientists, the U.S. government should encourage cloning research. The needs of children confined to wheelchairs, of parents dependent on oxygen tanks to breathe, and of friends imprisoned by the creeping paralysis of Parkinson's far outweigh the moral status of cloned cells that will never leave the petri dish. Myths should not be the basis for public policy when cures hang in the balance.

# Cloning Flicks Offer a Moral Lesson

**HOLLYWOOD WANTS** us to be afraid, very afraid, of human cloning. From Sylvester Stallone's soporific *Judge Dredd* to Arnold Schwarzenegger's hilariously stupid *The Sixth Day*, the denizens of Tinseltown remain firm in their belief that they know how to scare the average denizen of the local multiplex.

Hollywood has made cloning into a bogeyman despite the fact that there is no way anyone will make a human clone anytime soon. Even the scientists who are best at cloning animals can make it work only about 1 percent of the time. There is no reason to think that human beings will be any easier to make and every biological reason to suspect they will be a lot harder to do.

Not to be deterred, however, Hollywood portrays a future world gone haywire as a result of businessmen—driven by a lust for money—selling the public the products of amoral, egomaniacal geniuses.

The problem with these recent theatric examinations of cloning is that (1) they stink, and (2) no one is in the least bit frightened by any of the philosophical nonsense that interrupts the machine gunning and muscle flexing. (Well, OK, I confess I was a little frightened at seeing Arnold, but it was only from watching him agonize as he sought to voice his insights about the ethics of human cloning in response to interviews by Barbara Walters and Katie Couric on two national television programs.)

Perhaps we remain unmoved by films about human cloning because the nightmare is not our nightmare. The horror that can happen when greed and renegade genius mix is more apt in describing what Hollywood brings to the screens in our malls than it is at depicting the consequences of cloning.

There are movies that manage to scare us and do well at the box office as well. But they are mainly about what happens when something is done to clone animals or plants or to alter their biology. The best of the genre of bioterrorflix—*Jurassic Park*, various versions of *The Fly*, and such 1950s classics as *Them*—involve nature gone nuts after we get done





screwing around with its denizens.

I think there is a moral lesson nested in all this celluloid bioethics. We are much more worried about what we will do to nature with biotechnology and science than we are about what we will do to ourselves. We are actually, if subtly, used to changing ourselves. We do it by means of medicine, agriculture, and engineering from the moment we are born. Genetic change is change that is staggering in what it might lead to, but it is still nonetheless the kind of change that we already do to ourselves.

But ruining nature is different. The animals and plants have done nothing to bother us, so bothering them seems unjust. And if things go wrong with our interventions in nature—think killer bees, disease-resistant bacteria, extinct species, Starlink corn, dead Monarch butterflies—then we, as movies about what happens when you try to fool Mother Nature nicely illustrate, most certainly will pay the price for our arrogance.

Pundits, bioethicists, and columnists like to think that it is human cloning and human genetic engineering that will stir the greatest moral controversies of the twenty-first century. Perhaps not. If the cinematic arts are any real indication, Arnold just makes us laugh, but hurting a dinosaur via genetic engineering is no laughing matter. We are very worried that dinosaurs, other animals, and plants will find a way to bite back.

Perhaps it is no accident that there have been few demonstrations against human genetic engineering but a large number against genetically modified food.

# The End of the Embryonic Stem Cell Debate

**WHILE THE MEDIA** apparently cannot bring themselves to say so, and some right-to-life and religious leaders may never be able to admit it, the frenzied and sometimes overheated debate about embryonic stem cell research going forward in the United States is over. This may seem odd since it was Bush, who has long opposed embryonic stem cell research, and not Kerry, a vocal proponent, who won the election. But the debate ended as a result of other votes in November—one in California, the other in New York at the United Nations.

The citizens of the state of California voted overwhelmingly for Proposition 71 on November 2. The vote was a direct rebuttal to the Bush administration's de facto ban on funding for embryonic stem cell research, including especially no funds for the cloning of stem cells for research. By a vote of 60 percent to 40 percent, Californians allotted a staggering sum of money, $3 billion, to pay for embryonic stem cell research done within the state. The state will issue bonds that will soon have the state spending $300 million a year for the next ten years on embryonic stem cell research. California in a single year will spend ten times what the federal government has spent to date on stem cell research.

Hard on the heels of the California decision to end-run the Bush ban came another bitter defeat for the president. The United Nations, despite enormous pressure from the United States, abandoned an effort to enact a treaty that would ban all forms of human cloning, including cloning done to create stem cells for research—something the California initiative explicitly allows. During an August speech at the UN, the president had called for a total ban. But, on November 19, the General Assembly, under pressure from Great Britain, South Korea, Belgium, and a number of other nations already aggressively pursuing stem cell research, gave up its attempt to secure a ban. Instead, the UN agreed to consider a nonbinding declaration regarding cloning. This will be couched in vague terms and will be enacted at the earliest next February. The UN voted





against doing what the president has been unable to get the Republican Congress to do—ban the use of cloning for stem cell research.

Much has been made of the key role played by those who cared deeply about "moral values" in President Bush's reelection. But conservative values did not prevail on the issue of stem cell research. Voters in California rejected the president's position that embryonic stem cell research is immoral because it involves the sacrifice of human embryos. Instead, they took the moral view that human embryos should not be given moral standing equivalent to actual persons with all too real diseases that might be helped by embryonic stem cell research. In doing so, they now have guaranteed that embryonic stem cell research will proceed. They also gave the lie to the view that only Republicans are capable of addressing moral values.

The enactment of the California stem cell initiative, Proposition 71, is causing ripples all over American biomedicine. Some scientists who had set up partnerships with companies in Singapore, China, Korea, or Great Britain are now wondering whether California will prove a more hospitable environment for their work. Some California schools joke that they will have to stake out the airports to see which scientists or biotech CEOs are thinking about relocating. And states with a strong biotechnology sector are in a panic trying to figure out how to prevent California from reaping a scientific and economic bonanza from the Golden State's huge investment.

In Massachusetts, Minnesota, New Jersey, and Illinois, legislators are scrambling to enact legislation trying to make their states look attractive to scientists, venture capital firms, and biotech companies that want to do stem cell research. Wisconsin governor Jim Doyle has announced a $750 million initiative in stem cell research to try to protect the state's early lead in embryonic stem cell research. More states will undoubtedly follow as it becomes clear that if you are in a state that is seen as inhospitable to stem cell research, you are in a state that will not be able to quickly capture what promises to be significant economic and therapeutic returns.

Even proponents of embryonic stem cell research are somewhat confused by the turn of events at the United Nations and in California. Some of those involved with patient advocacy groups want to continue to press the president to drop his prohibition on federal funding for new cell lines

or cell lines derived from cloning. But the size of the California investment means that political interest in Washington in the subject is likely to wane. The president can tell his supporters that he still supports a ban, knowing all the time that the United States has now become a major player in stem cell research. If ever there was a slick resolution to a very tough political dilemma, the California funding bonanza is it.

So now the ball is in the court of the scientists who have fought so hard to get more funding. Between the vote at the United Nations and the California initiative, there is now plenty of money available for embryonic stem cell research. The question is, Can science deliver on the promise over the next ten years?

The battle over embryonic stem cell research involved a considerable amount of hype, distortion, and dissembling. Conservatives used public fears of cloning to confuse the issue over cloning for research. Proponents of embryonic stem cell research responded to the unfair charge that they were killing for cures with promises that diabetes, paralysis, Alzheimer's, and Parkinsonism would become memories if only the research were allowed to proceed.

Few in the debate seemed to know or care that hundreds of embryos are destroyed every day at fertility clinics around the United States and that tens of thousands more lie unwanted in frozen storage with no fate other than to be destroyed. Both sorts of embryos could and should be used in research.

In the end, common sense prevailed. Americans' admiration for technology overcame their moral reservations about using embryos in research. And the international community realized that by allowing cloning for research, there was no reason to worry that a cloned human being would be living down the street anytime soon. President Bush may have held some of the high moral ground in the recent election, but the conclusion of the embryonic stem cell debate shows that he did not hold it all.