

*Whose View of Life?
Embryos, Cloning, and Stem Cells*

By Jane Maienschein

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Today any book title containing the words “stem cells” cannot fail to attract readers’ attention. If there is any one debate that fires society’s passion, it is stem cell research and the questions on life, society, science and our individual morality such research raises. The book’s other topics, embryology and cloning, are equally divisive however the recent presidential decisions and debates on stem cell research take center stage. The author proposes analyzing the past to seek out how society previously dealt with issues on the science of life and its manipulations. In turn, Maienschein examines how wills this, and should affect modern problems with stem cell research in the United States. The topic has received extensive attention leading to the question on where stem cell research should go, if anywhere.

The author is in a prime position to discuss these issues from, hopefully, a balanced position. She is a professor of Biology and Society, and Director of the Center for Biology and Society at Arizona State University, concentrating in the developmental biology field. In addition, she was science advisor to Arizona Congressman Matt Salmon during the critical early Congressional debates on cloning and stem cell research.

The author sets up the problem of weighing morality against science by seeking to incorporate history’s mistakes and lessons into her argument. She contends that biological and societal studies should bring together the various perspectives from

science, history, philosophy, bioethics, law and policy into an intelligent and effective bioscience policy beyond extremist positions. In other words, the villagers should not race to kill Frankenstein, but then again they should not invite him in to look after your children.

As befitting an historically backed approach, the author immediately delves into the history of pre-birth science, cells, embryos, DNA and stem cell research. She begins with Aristotle, a common starting point for historical science. Aristotle saw the living body as differing from mere material and that the soul was the life-creating agent, setting into motion causes that actualize the potential life latent in the material.¹ Later religious interpretations differ from this viewpoint. Judaism had a clear moment of ensoulment,² Christianity held abortion was a sin but not homicide and the first pontifical Bull on the issue was only in 1588, and in Islam, though there were myriad interpretations, a constant position was that before forty days a killed unborn fetus was not murder.

In laying out these early historical issues, Maienschein brings up important issues that still affect today's decision making on the debate between science and morality.³ The author's argument would have benefited from including more on this topic, in particular, on what the larger society thought on these issues, the debates within these religions and

¹ What the author calls the "epigenetic" view.

² The only remedy for miscarriage that resulted from exterior action was monetary and not criminal homicide.

³ There is no denying the religious influence on modern U.S. society. The religious pressures on President Bush when he made his 2001 decision on stem cell research were huge. These pressures are also strong on abortion and the recent possibility that Bush might get the chance to nominate new Supreme Court judges has left pro-life lobbyists quivering at the thought of over-turning *Roe v. Wade*. For a good general description of Christianity and the abortion, medical and biological questions, see Basil Mitchell, *The Christian Conscience*, in *The Oxford Illustrated History of Christianity* 602-27 (John McManners ed. 2001).

in turn, their effect on the secular world. For example, women and birth control, medicine, the differences between religious tenets and societal practicalities.⁴

The author moves on to discuss how the Scientific Revolution and the Renaissance brought about, in the greater schemes of human history, an explosion in our understanding and use of the body and its anatomical workings. This initial expansion in anatomical understanding and the difficulties inherent in our limited visual range is explored. The difficulty and the moral abhorrence inherent in obtaining fetuses for examination are briefly touched upon, and the author fails to delve further even though the same issues are found in stem cell research.⁵

The author then thoroughly explores the various theories on the beginning and creation of life that existed during this period, ranging from Aristotelian, religious ensoulment, preformationists who saw life encapsulated in the very generation of the fetus, to others like vitalists, generalationists and materialists. As science progressed and cells were examined in even greater detail, the non-scientific world reacted in tandem, for example an increased understanding on the role of the sperm led to the papacy to declare in 1869 that life began at conception.⁶

Up to this point, the author has bombarded the reader with facts, scientists and the way they built upon their predecessor's work. The information is interesting and educates the reader on the historical science, its difficulties and theories through detailing the experiments, conclusions and explorations of each scientist. This is salient and interesting

⁴ It is pertinent to point out that in the Christian world the secular courts enforced criminal homicide and any other moral issues deemed crimes by the papacy. Without this secular arm the Church was in effect powerless, for example the Church in the fourteenth century needed the King of France to defeat and burn the Cathar heretics.

⁵ The author briefly discusses how the scientist His sought embryos for his research and attempted, sometimes successfully, to persuade other scientists in the field to collect and preserve embryos for his research.

⁶ Since life begins at conception, any action that leads to miscarriage or abortion is technically murder.

information but the analysis would have benefited from a deeper exploration into these scientists' background, their own personal morals, society's morals and how their science worked within these frameworks. As Maienschein later points out, we need a balance between the science *and* the moral and socio-political background.

The author moves on from this scientific background into a discussion onto how the field of genetics opened up and formed the twentieth century's biological core.⁷ The eugenics movement arose in reaction to this genetic expansion and subsequently many States passed eugenic laws, which were used to sterilize countless innocent victims.⁸ This led to the disturbing 1927 Supreme Court ruling in *Buck v. Bell* and the author quite rightly discusses it in depth, as it is an example of the balance between science, morality and intelligentsia gone wrong.⁹ The Virginia law in question allowed the forced sterilization of three generations who were proven as retarded or imbecile. The unfortunate Carrie Buck's mother and child were deemed imbeciles, and in a further travesty under then hereditary thinking, her sister was also sterilized. The author is cautious in criticizing the decision because at the time sterilization for society's sake was a commonly accepted policy.¹⁰ Yet, she notes that the *Buck* case was still a tragedy and miscarriage of justice and we should learn from their mistakes. To the United States' credit the country subsequently moved away from legal eugenics, though for political and

⁷ Mendel's work on heredity and Thomas Morgan's seminal book on the *Drosophila* Fly are stalwarts of many school curriculums.

⁸ By 1958 over 61,000 Americans had been sterilized (20,000 in California alone).

⁹ *Buck v. Bell*, 247 U.S. 300 (1927).

¹⁰ Even so, Oliver Wendell Holmes' decision and statement demand quotation: "It would be strange if it [society] could not call upon those who already sap strength of the State for these lesser sacrifices...[sterilization]...in order to prevent our being swamped with incompetence...[Carrie Buck] is the probable potential parent of socially inadequate offspring...[and] she may be sexually sterilized without detriment to her general health..." For general background *see* Stephen Jay Gould, Carrie Buck's Daughter, *Natural History* 93, 14-18 (1984).

not scientific reasons. This example shows the seesaw change in political, legal and moral thinking as science impacts upon society is nothing new.

After exploring the history of genetics up to the 1980's, the author tackled the book's three main modern case studies: embryos, cloning and stem cells. The debate over recombinant DNA,¹¹ IVF¹² and abortion is fully explored in an attempt to show the modern dilemma over science. Interestingly, scientists in the 1970's admitted a lack of understanding about the effects of recombinant DNA and asked the NIH (National Institute of Health) to set up a committee to evaluate hazards and develop procedures. Deemed an over-reaction, legal attempts to ban this area failed and scientists subsequently regulated themselves.

The world's first test tube baby ushered in a new IVF world.¹³ The author explores the birth's effect and the legal questions raised such as fertilized and non-fertilized egg ownership, transferability, destruction, estates, etc.¹⁴ Yet even with the backlash against IVF and recombinant DNA, the author shows us that these processes were accepted due to their monetary and physical benefits.¹⁵

Though touched upon in connection with IVF and genetics, the author fails to take a deeper analytical look at the wider role law plays in this area because the court's judgments exert a deeper influence in this area than we realize. The courts after all

¹¹ In a nutshell, cutting and pasting DNA strands from and into the same or different species.

¹² This is an acronym for *In Vitro* fertilization.

¹³ Louise Brown, United Kingdom (1978). Louise's birth was due to collaboration between a biologist and physician, echoing the author's later emphasis on the need for holistic science and the move away over-emphasizing genes.

¹⁴ The question of body part ownership subsequent to leaving the body was first tackled in *Moore v. Regents of the University of California*. 51 Cal. 3d 120 (1990)(holding plaintiff did not possess any property rights in removed spleen but could sue doctors for failing to disclose intended research and marketing use). For legal issues on the ownership of frozen embryos *see* *Davis v. Davis*, 842 S.W.2d 588 (Tenn. 1992)(holding frozen embryos neither person nor property but entitled to special respect due to the potential for human life) *compare* *Hecht v. Superior Court*, 16 Cal. App. 4th 836 (1993) (holding sperm donated to bank property of donor and bequeathal).

¹⁵ Biotechnology and fertilization clinics today are large moneymaking businesses.

uphold society's perceived norms on morals and behavior. Cases like *Roe v. Wade*, *Brown*, *Moore*, etc, have at different times told us what is the balance and society has followed their example.¹⁶ It is only a matter of time before bans on cloning or stem cell research issues reach the higher courts.

The author tentatively and neutrally explored the abortion question and how abortion laws rose and fell from 1870's onwards in reaction to lobbying and pragmatic considerations.¹⁷ *Roe v. Wade* is explained but the discussions seems pointless because abortion is not a new science and has been around for centuries and is more currents in internal religious doctrines then any recognizable reaction to a new science.

Next the author discusses the rise of "genomania," bioethics¹⁸ and the political and scientific build up to The Human Genome Project. Like the first test-tube baby, Dolly the sheep's creation was a watershed in this field and resulted in an explosion in political and personal passions against mammalian cloning. The author shows the reader how the world reacted to Dolly and the whole cloning issue, which in the long run led to the genome project and this may in turn predict stem cell's path. The discovery of undifferentiated cells and the stem cell properties occurred in the late 1990s and many were quick to see benefits in this "regenerative medicine."¹⁹ As a result, Bush in 2001

¹⁶ See *Brown v. Board of Educ. of Topeka*, 347 U.S. 483 (1954)(forcing desegregation); *Roe v. Wade*, 410 U.S. 113 (1973) (permitting abortion before third trimester); *Cleburne v. Cleburne Living Center*, 473 U.S. 432 (1985)(concerning mental retardation); *Michael H. v. Gerald D.*, 491 U.S. 110 (1989) (holding a right to a parent/child relationship); see *Moore* note 15 (devolving property rights in removed spleen and subsequent profitable cell lines); *Washington v Glucksberg*, 521 U.S. 702 (1997) (holding rights to assisted suicide); *Lawrence v. Texas*, 123 S. Ct. 2472 (2003) (deciding right to private homosexual conduct). All of these are contentious decisions on heated topics, but in general society has followed and embraced their results.

¹⁷ The author points out that President Nixon saw the monetary advantage in family planning over cost of unwanted children; Bush does not according to the author.

¹⁸ The author thinks many bioethical positions are *a priori* knee-jerk reactions and are using science to reach conclusions they desire.

¹⁹ This is the idea that replacement parts could be "regulated" from undifferentiated cells or replacement DNA inserted into people with genetic disorders.

limited stem cell research to stem cell lines already in existence and no federal funding for new lines or work on privately created new lines was permitted. The author thinks Bush had to make a difficult choice and balanced all the elements.

The author's approach is to examine past and present issues surrounding science and morals through exploring in detail the historical growth in embryology, genetics, cell manipulation, recombinant DNA, IVF, abortion, cloning and stem cell research. She concludes that we need to learn to tolerate each other's views and that science and morals can live side by side. There is a need for more public education on science and a balance between science and morals is desirable. Yet when is a balance, tolerance and public education not desirable?

Finally, though the author thinks there is a need for some sort of policy, I fail to see what it is and she postulates none. The questions she raises are thought provoking and the history of prior examples are illuminating. Yet the author would have been better served by stating her thesis in a survey-like manner such as 'this is what has been and this is where we are now, and these are the bioethical problems.' I would have liked some predictions and solutions. Even with these criticisms, I enjoyed and recommend this book. The historical exploration illuminates today's bioethical issues. The problems facing society are explored and difficult questions are unashamedly posited.