Impact of Cloning Technology

When told that Dr. Richard Seed intended to clone human beings by 2000, Dr. Ian Wilmut, Dolly's creator, stated: "Let me remind you that 1/4 of the lambs born in our experiment died within days of birth. Seed is suggesting that a number of humans would be born but others would die because they didn't properly develop. That is totally irresponsible."[1]

Senator Tom Harkin defended human cloning, saying there are not "any appropriate limits to human knowledge. None, whatsoever . . . To my friends Senator Bond and President Clinton who are saying 'Stop, we can't play God,' I say 'Fine. Take your ranks alongside Pope Paul V who in 1616 tried to stop Galileo.'"[2]

Like animal cloning, human cloning poses physical risks to the clone, surrogate mother, and egg donor. Whether cloning to bring about the birth of a child or creating cloned embryos for research, a woman is required to take fertility drugs and, while superovulating, have her eggs artificially removed. And a lot of eggs are needed. One estimate is that 100 eggs must be harvested to derive *one* usable cloned embryo.[3] A report in the Proceedings of the National Academy of Science estimates that it would cost between $100,000 and $200,000 to create a single usable stem cell line.[4] The South Korean team that created cloned human embryos used 242 harvested eggs from 16 volunteers, and observers have raised concerns about whether the egg donors truly understood the risks and benefits of the egg-retrieval process.[5]

One study speculates that it may be possible to create human embryo stem cells without eggs, a feat the authors reported would "overcome the ethical and practical limitations" of research cloning. Citing an earlier study, the authors wrote that it might be possible to manipulate genes in somatic cells so the cells grow directly into embryonic stem cells, eliminating the interim step of inserting the somatic cell into an egg.[6] Even if cloning can be performed without human eggs, it does not follow that there would no longer be any "ethical" limitation or objection to creating human embryonic stem cells solely for research or to bring about the birth of a child.

Even assuming cloning posed no physical risks, cloning could have a devastating emotional impact on the cloned child. If, for example, parents chose genetic donors on the basis of a particular talent, they might exert an improper amount of coercion to get the child to develop those talents. If the child's talent fell short of the donor's talent, the parents *and* child might devalue the child and his or her future. Cloning also raises the risk that a child about whom genetic information is known in advance will experience limited opportunities or discrimination. For example, parents who know about their child's genetic status for recessive or late-onset disorders might attempt to limit the child's exposure to certain environments, educational or vocational experiences, or to influence the child's reproductive and familial choices. Knowledge of a child's genetic make-up might result in insurance or employment discrimination against or for the cloned individual. These concerns are directly contrary to what philosopher Joel Feinberg refers to as a child's right to an "open future."[7] Cloning, says lawyer Francis Pizzulli,

represents the potential for "abuses of the power to control another person's destiny -- both psychological and physical -- of an unprecedented order."[8] Philosopher Mary Midgley described the response to the news of mammalian cloning: "It is primarily a fantasy about power. What is disturbing doesn't seem to be the prospect of these things actually happening, but the kind of excitement which the power fantasies generate, not just at the street level, but perhaps also among the kind of people who control funds for scientific research."[9]

In stark contrast to those who argue that cloning will result in strained parent-child relationships, some contend that cloning, and the potential for cloning, is psychologically beneficial to infertile individuals and others, such as gay men and women, who choose not to reproduce sexually.[10] John Robertson believes that cloning should be classified as a form of human reproduction, and protected as such, at least if it is the only way for an individual to have a "genetically-related child."[11] Another commentator argues that cloning allows the somatic cell donor to select desirable parents for his or her clone, allowing the somatic cell donor to have a "delayed twin" raised by "better" parents.[12] In this manner, cloning psychologically benefits the DNA donor, the surrogate parents, and the cloned child.[13] The cell donor serves as an "instruction manual" about the genetic component of a cloned child, which would assist the parent in guiding the child vis-à-vis his or her natural talents, diseases, and other needs.[14] Bioethicist Gregory Pence posits that the father-child relationship might be stronger when the child is cloned. Mr. Pence notes that "fathers often have had little relation to small children," and "having a child who looked like you and had your genes" would result in a "stronger-than-normal social bond between father and son."[15]

Two questions immediately come to mind: Aren't there *better* ways to establish a connection between men and their sons -- ways, in fact, that would have additional social benefits (such as fostering more paternity leaves for men)? And, what happens to the relationship between men and daughters? Fathers have traditionally underinvested in the welfare of their daughters (by not providing as much support for daughters' education, for example). Enhancing the bond between fathers and their clones might lead to even fewer resources going to daughters.

Aside from the debate about the ethical and physical risks of cloning, the cost is likely prohibitive for most. Dr. Alan Trounson, who has cloned several species, estimates that it would cost $1 million to clone a human.[16] The Raelians, who claimed in 2002 to have created the first cloned baby girl, say that while they have not yet started to charge for their services, ultimately it will cost $200,000 for their services.[17]

---

[1] *See* "Seed's Human Cloning Bid Draws Edgy World Reactions," Medical Industry Today, January 8, 1998.

[2] *See* Sheryl Stolberg, "Sheep Clone Researcher Calls for Caution Science," Los Angeles Times, March 1, 1997, at A18. If Congress (or a state) were to adopt a ban on human cloning or germ line genetic engineering, a question would arise regarding whether scientists have a constitutional right of inquiry that could serve as the basis of a constitutional challenge to such a restriction. There is no doubt that scientific inquiry has been an enduring American value. The framers of the Constitution discussed the sacred nature of scientific inquiry. Gary L. Francione, "Experimentation and the Marketplace Theory of the First

Amendment," 136 U. Pa. L. Rev. 417, 428-429 (1987). The Constitution established a system of patents to promote scientific invention. One of the powers of the legislative branch under the patents and copyrights clause of the U.S. Constitution is "[t]o promote the Progress of Science and useful Arts, by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. Const. Art. I, § 8, cl. 8. Historically, scientific theories have been protected because of the great social import the United States places on the "sanctity of knowledge and the value of intellectual freedom." *See* June Coleman, "Playing God or Playing Scientist: A Constitutional Analysis of Laws Banning Embryological Procedures," 27 Pac. L.J. 1331, 1386-87 (1996).

[3] *See* Peter Mombarts, "Therapeutic Cloning in the Mouse," (2003) *available at* http://www.pnas.org/cgi/content/abstract/100/suppl_1/11924 (last visited June 2, 2004).

[4] *See* Peter Mombarts, "Therapeutic Cloning in the Mouse," (2003) *available at* http://www.pnas.org/cgi/content/abstract/100/suppl_1/11924 (last visited June 2, 2004).

[5] Rick Weiss, "S. Korean Scientists Describe Cloning," The Washington Post, February 13, 2004.

[6] Konrad Hochedlinger and Rudolf Jaenisch, "Nuclear Transplantation, Embryonic Stem Cells, and the Potential for Cell Therapy," 349 N. Engl. J. Med 275-286, 284 (2003).

[7] *See* Joel Feinberg, "The Child's Right to an Open Future," in Whose Child? Children's Rights, Parental Authority, and State Power (W. Aiken & H. LaFollete eds., 1980).

[8] Francis C. Pizzulli, Note, "Asexual Reproduction and Genetic Engineering: A Constitutional Assessment of the Technology of Cloning," 47 S. Cal. L. Rev. 476, 497 (1974).

[9] Geraldine Murray, "Created in Our Image," Scotland on Sunday, March 2, 1997, at 12.

[10] *See* Simon Smith, "All the Reasons to Clone Human Beings," *available at* http://www.humancloning.org/allthe.php (last visited June 2, 2004).

[11] John A. Robertson, *Two Models of Human Cloning*, 27 Hofstra L. Rev. 609 (1999).

[12] *See* Simon Smith, "All the Reasons to Clone Human Beings," *available at* http://www.humancloning.org/allthe.php (last visited June 2, 2004).

[13] *See* Simon Smith, "All the Reasons to Clone Human Beings," *available at* http://www.humancloning.org/allthe.php (last visited June 2, 2004).

[14] *See* Simon Smith, "All the Reasons to Clone Human Beings," *available at* http://www.humancloning.org/allthe.php (last visited June 2, 2004).

[15] Gregory E. Pence, Who's Afraid of Human Cloning? 112 (Rowman & Littlefield Publishers, Inc., 1998).

[16] *See* "Cloning Around," 358 Economist 79 (2001).

[17] *See* Hans Nichols, "Clone of Aliens Are Among Us?" Insight Magazine, posted October 5, 2001 and reposted December 28, 2002, *available at* http://www.insightmag.com/news/2003/01/07/National/Clones.Of.Aliens.Are.Among.Us-342658.shtml (last visited June 3, 2004).