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Recommended Citation

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Scholarly Works. 1159.

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BROOKLYN LAW REVIEW

Volume 66

2000-2001

Number 3

ARTICLES

BEYOND CLONING: EXPANDING REPRODUCTIVE OPTIONS FOR SAME-SEX COUPLES*

David Orentlicher[†]

INTRODUCTION

New reproductive technologies seem at once both “unnatural”¹ and “naturalizing,” and therein lies society’s simultaneous aversion and attraction to the technologies. In vitro fertilization (“IVF”) yields unnatural, “test tube” babies,² but it

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¹ As I explain in more detail later, I generally do not see a meaningful difference between the natural and unnatural. *See infra* text accompanying notes 11-13. My discussion here is descriptive of how people *do* think, not normative of how people *should* think.

² With IVF, sperm and eggs are mixed in the laboratory, and some or all of the resulting embryos are inserted into the woman’s uterus or one of her fallopian tubes (the tubes through which eggs travel from the ovaries to the uterus). Richard J. Paulson & Melvin H. Thornton, *In Vitro Fertilization and Related Assisted Reproductive Technologies*, in MISHALL’S TEXTBOOK OF INFERTILITY, CONTRACEPTION, AND REPRODUCTIVE ENDOCRINOLOGY 754, 759-61 (Rogerio A. Lobo et al. eds., 4th ed. 1997). A recent study suggests that inserting the embryos into a fallopian tube rather than the uterus does not increase the chances of pregnancy. Eric Nagourney, *Vital Signs: Fertility; New Findings on Fallopian Implants*, N.Y. TIMES, Nov. 14, 2000, at F8.

also allows many infertile couples to have genetically related children and therefore to have the same reproductive options as fertile couples. Surrogate motherhood seems unnatural because it separates genetic, gestational, and social motherhood.³ With traditional surrogacy, the woman who raises the child after birth (the social mother) is not the woman who provides the egg and carries the fetus to term (the genetic and gestational mother).⁴ At the same time that it looks unnatural, surrogacy seems naturalizing because it lets men have genetically related children despite the infertility of their wives.⁵ Cloning appears to be the most unnatural of all because it creates children with genes from only one adult.⁶ And, of the new reproductive technologies, it has probably provoked the strongest condemnation.⁷ Yet cloning may ultimately be accepted because it will allow infertile couples (and single persons) to raise their families without involving sperm donors, egg donors, or other third parties as genetic parents of the children.⁸

Importantly, the techniques developed in cloning may lead us to novel reproductive methods that could seem the most naturalizing of all. Further technological advances might elimi-

³ See generally Lisa Sowle Cahill, *The Ethics of Surrogate Motherhood: Biology, Freedom, and Moral Obligation*, 16 LAW MED. & ETHICS 65 (1988).

⁴ MARTHA A. FIELD, SURROGATE MOTHERHOOD: THE LEGAL AND HUMAN ISSUES 4-5 (1988). With gestational surrogacy, maternal roles are divided differently. One woman is the gestational mother, and another woman is the genetic and social mother. *Johnson v. Calvert*, 851 P.2d 776, 778 (Cal. 1993) (en banc). In some cases, genetic, gestational, and social motherhood are divided among three different women. *Buzzanca v. Buzzanca*, 72 Cal. Rptr. 2d 280, 282 (Cal. Ct. App. 1998) (involving a child adopted by one woman after another woman carried a pregnancy created from the sperm and egg of anonymous donors).

⁵ Similarly, artificial insemination with donor sperm allows women to have genetically related children despite the infertility of their husbands.

⁶ CLONING HUMAN BEINGS: REPORT AND RECOMMENDATIONS OF THE NATIONAL BIOETHICS ADVISORY COMMISSION 1 (1997) [hereinafter CLONING HUMAN BEINGS]. In cloning, genes are transferred from an adult cell to an egg whose genetic material has been removed. *Id.* at 15-21. The egg then develops into an embryo and fetus. Ian Wilmut et al., *Viable Offspring Derived from Fetal and Adult Mammalian Cells*, 385 NATURE 810, 813 (1997). To date, cloning has been performed only in animals. Nancy Gibbs, *Baby, It's You! And You, And You . . .*, TIME, Feb. 19, 2001, at 46, 47-48.

⁷ See generally Leon R. Kass, *The Wisdom of Repugnance: Why We Should Ban the Cloning of Humans*, 32 VAL. U. L. REV. 679 (1998).

⁸ David Orentlicher, *Cloning and the Preservation of Family Integrity*, 59 LA. L. REV. 1019, 1019 (1999).

nate one of the chief distinguishing characteristics of gay⁹ couples—their inability to have children who are genetically related to both members of the couple. If all of the genes of a single adult can become the genes of a child through cloning, then half the genes of two gay adults should someday be able to become the genes of a child. Same-sex couples, like heterosexual couples, could have children genetically related to both parents.

Such a development would yield profound benefits for both gay couples and society. Gay couples have the same strong interest as heterosexual couples in raising children with whom they have biological ties. Moreover, with genetic parenthood, the gay family would look more like the heterosexual family, and this could help diminish societal stigmatization of gays. Prejudice is rooted in large part in perceived differences. Lessening the differences between gays and heterosexuals might therefore help combat discrimination by heterosexuals against gay persons. In short, although it is controversial whether humans ought to clone themselves,¹⁰ physicians should be able to bring the techniques developed for animal cloning into the clinic to help gay couples have genetically related children.

Despite the value of gay reproduction, laws designed to prevent human cloning could have the inadvertent effect of preventing genetic reproduction by same-sex couples. Laws banning cloning or impeding cloning research define cloning in a way that would include genetic reproduction by same-sex couples, especially male-male couples. Such an effect would be unfortunate, indicating the need for revision, and possibly abandonment, of anti-cloning legislation.

In the remainder of this Article, I will consider in more depth the possibility of genetic reproduction by gay couples and the benefits that could result for homosexual individuals and

⁹ While some writers use the term "gay" to refer to male homosexuals and "lesbian" to refer to female homosexuals, this Article will use the term "gay" for both female and male homosexuals.

¹⁰ See generally George J. Annas, *Why We Should Ban Human Cloning*, 339 NEW ENG. J. MED. 122 (1998); Orentlicher, *supra* note 8, at 1020-27; Susan M. Wolf, *Ban Cloning? Why NBAC Is Wrong*, 27(5) HASTINGS CENTER REP. 12 (1997). For additional discussion, see generally *Symposium on Human Cloning: Legal, Social, and Moral Perspectives for the Twenty-First Century*, 27 HOFSTRA L. REV. 473 (1999); Cloning Symposium, 38 JURIMETRICS J. 1 (1997); Symposium Issue, 32 VAL. U. L. REV. 349 (1998).

for society. I will also examine the concerns that might be raised with gay reproduction and indicate why I do not think that we need to worry about those concerns. Accordingly, I will conclude that researchers should give attention and priority to developing techniques that would allow genetic reproduction by gay couples and that legislators should reconsider their enthusiasm for laws that would discourage or prohibit the use of medical technology to clone human beings.

Before proceeding, I have a point of clarification. When I spoke above of natural and unnatural methods of reproduction, I was speaking descriptively, rather than normatively. That is, I was discussing the fact that people commonly distinguish "artificial" methods of reproduction like IVF or surrogacy from medically unaided reproduction in terms of the artificial methods' apparent unnaturalness. However, I was not suggesting that these methods are in fact unnatural.¹¹ I generally reject efforts to distinguish between natural and unnatural practices.¹² Everything people do is, in part, a product of their nature, and that makes their practices natural.¹³

I. THE SCIENCE OF SAME-SEX REPRODUCTION

To understand the science of same-sex reproduction, it is useful to review the science of cloning. Recall that, when Ian Wilmut and his colleagues cloned a ewe (a female sheep), they used a novel method to create the embryo that became the baby lamb (Dolly). Ordinarily,¹⁴ an embryo results from the combination of a mother's egg and a father's sperm, and the child receives half of its genes from the mother and half from the father.¹⁵ The maternal genes are contained in the egg's

¹¹ This is why I said that IVF, surrogacy, and cloning *seem* unnatural rather than saying that they *are* unnatural. See *supra* text accompanying note 1.

¹² See, e.g., David Orentlicher, *The Legalization of Physician-Assisted Suicide: A Very Modest Revolution*, 38 B.C. L. REV. 443, 449 (1997) (rejecting the distinction between natural and unnatural deaths in the context of end-of-life medical treatment decisions).

¹³ The argument is more complicated, but a more developed argument against the natural-unnatural distinction is beyond the scope of this Article.

¹⁴ In a few organisms, reproduction can occur with an egg alone. ALBERTS ET AL., *MOLECULAR BIOLOGY OF THE CELL* 1021 (3rd ed. 1994).

¹⁵ A human cell has thirty to forty thousand genes in its nucleus. Nicholas Wade, *Genome Analysis Shows Humans Survive on Low Number of Genes*, N.Y.

nucleus, the paternal genes are contained in the sperm's nucleus,¹⁶ and each egg or sperm has half the number of genes as other cells in the body.¹⁷ With Dolly, however, the embryo resulted from the fusion of a maternal breast cell¹⁸ and an egg whose nucleus had been removed (an enucleated egg).¹⁹ Instead of Dolly receiving half of her genes from a mother and half of her genes from a father, Dolly received all of her genes from her mother, which were contained in the nucleus of the breast cell.²⁰

Variations on the cloning techniques used to create Dolly would appear to make reproduction by same-sex couples feasible. For such reproduction, physicians could presumably take a cell from each partner and reduce the number of chromosomes in each cell's nucleus by one half. They could then fuse the two adult cells with an enucleated egg.²¹ If an embryo resulted

TIMES, Feb. 11, 2001, at 1. The genes are found within forty-six chromosomes.

¹⁶ There is a little more to understanding the location of genes in a cell. Genetic material rests not only in the nucleus of a cell, but also in the mitochondria (the cell's "energy factories"), which reside outside the cell's nucleus. Lori B. Andrews, *Is There a Right to Clone? Constitutional Challenges to Bans on Human Cloning*, 11 HARV. J.L. & TECH. 643, 647 (1998). Thus, a woman's egg has genetic material in the nucleus and in the mitochondria outside the nucleus. If a woman clones herself and uses one of her own eggs, all of her child's genetic material will come from her. If a man clones himself, or a woman clones herself with another woman's eggs, the child will have genetic material from two "parents." Stephen Jay Gould, *Dolly's Fashion and Louis's Passion*, 106(5) NATURAL HISTORY 18, 22 (1997). It is not known at this time the extent to which mitochondrial genetic material affects a person's development.

¹⁷ To be precise, a child receives half of its chromosomes from each parent, but male children receive more than half of their genes from their mothers. Recall that (in mammals) females have two X sex chromosomes, and males have an X chromosome from their mothers and a Y sex chromosome from their fathers. Since the X chromosome has more genes than the Y chromosome, males receive more than half of their genes from their mothers.

¹⁸ Apparently, it is unimportant which adult cell is used. A skin, tongue, or blood cell should work just as well as the mammary gland cell did for Dolly. In the future, cloning might also occur by using only the nucleus of an existing person's cell.

¹⁹ Wilmut et al., *supra* note 6, at 811; CLONING HUMAN BEINGS, *supra* note 6, at 20, 22.

²⁰ Wilmut et al., *supra* note 6, at 811-12. Although cloning changes the way in which genes are passed to children, it does not alter the need for a nine-month period of gestation (for humans) between creation of an embryo and birth of a child.

²¹ William N. Eskridge & Edward Stein, *Queer Clones*, in CLONES AND CLONES: FACTS AND FANTASIES ABOUT HUMAN CLONING 95, 106-09 (Martha C. Nussbaum & Cass R. Sunstein eds., 1998).

from the fusion, it would have half of its genes from one member of the couple, and half from the other member.²² The embryo could then be inserted into the reproductive tract of one of the women, if a lesbian couple were having the child, or into the reproductive tract of a surrogate mother, if a male-male couple were having the child. At that point, pregnancy would continue in the usual way, with the child being born in about nine months.²³ And, the child would have a unique combination of genes from two parents.

One can imagine other approaches to reproduction by same-sex couples. For example, with two men, both men would provide their sperm.²⁴ An egg would be obtained from a female donor, and the egg's nucleus removed. Then, through the technique of intracytoplasmic sperm injection,²⁵ a single sperm from each man could be inserted into the enucleated egg. Thus, instead of delivering a full complement of genes

Exactly how this would be done is uncertain. Currently, scientists cannot simply reach into a nucleus and pluck out chromosomes. However, they can use a drug (e.g., colcemid) to cause a division of the nucleus into several mini-nuclei, each of which has one or a few chromosomes. They can also "tag" the individual chromosomes with markers so they can distinguish the different chromosomes from each other. Finally, they can select mini-nuclei with particular chromosomes to be fused with a cell. Michael J. Anderson & Eric J. Stanbridge, *Tumor Suppressor Genes Studied by Cell Hybridization and Chromosome Transfer*, 7 FASEB J. 826, 828-29 (1993). It seems likely that scientists could use this approach to assemble a group of mini-nuclei with a half set of chromosomes from each member of a gay couple and fuse the mini-nuclei with an enucleated egg.

²² While the embryo would receive a unique combination of genes from two parents, as with traditional forms of reproduction, there would be less shuffling of genes than occurs with heterosexual reproduction. When eggs and sperm are formed, precursor cells divide in such a way as to split their twenty-three pairs of chromosomes (forty-six total chromosomes) between two eggs or two sperm that each have twenty-three single chromosomes. In this division, the corresponding chromosomes in each of the twenty-three pairs exchange genes with each other before the chromosomal pairs are separated into different eggs and sperm. BRUCE ALBERTS ET AL., *supra* note 14, at 1016-17. That exchange step would not take place if cells other than eggs or sperm were used to supply the embryo's genes.

²³ Of course, cloning has not yet been done in humans, even though it has been accomplished in a variety of animals, including mice, sheep, and cows. Orentlicher, *supra* note 8, at 1021 n.10.

²⁴ Timothy Murphy, *Our Children, Our Selves; the Meaning of Cloning for Gay People*, in FLESH OF MY FLESH: THE ETHICS OF CLONING HUMANS 141, 142 (Gregory E. Pence, ed. 1998).

²⁵ With intracytoplasmic sperm injection, physicians inject a single sperm directly into the cytoplasm of an egg (the cytoplasm is the part of the cell outside of the nucleus). Abi Berger, *Science Commentary: What Is Involved in Intracytoplasmic Sperm Injection?*, 318 BMJ 705, 705 (1999).

from a single adult cell to the egg, as would occur with cloning, two half sets of genes would be delivered from two sperm. If fertilization took place, the embryo could be placed into the reproductive tract of a woman willing to serve as a gestational surrogate for the male couple.

Reproduction by two women might occur with an egg from each of the women. In a process like that used with the adult cell and the enucleated egg in cloning,²⁶ electrical pulses might induce fusion of the egg from one woman with the egg from the other woman. As with cloning, the electrical pulse might also induce activation of the fused eggs so that they take on the form of an embryo. Or, instead of fusing two eggs, the physician might remove the nucleus from one woman's egg and insert the nucleus with a needle directly into an egg from the second woman.²⁷ One can also imagine a third approach. After removing a nucleus from one of the women's eggs, the physician might condense the genetic material so that it could fit into an enucleated sperm.²⁸ The sperm with the woman's genetic material could then be inserted into a second woman's egg through intracytoplasmic sperm injection. Any resulting embryos could be placed into either woman's reproductive tract.

Reproduction by two women might also occur by combining genes from an egg with genes from a non-egg cell. Physicians might be able to take a cell from one of the women, reduce the number of chromosomes in the cell by one half, and then fuse the cell with an intact (i.e., nucleated) egg from the other woman.

Whether any of these methods will actually work is unclear. Even though cloning can occur with a single adult cell that has a full set of genes, two adult cells with half sets of genes might not merge successfully with an enucleated egg. The two half sets of genes might not be able to combine into a single full set of genes. Or, the process of removing half of the genes from a cell might disrupt the cell in a way that interferes with the fusion of the cell with an enucleated egg.

²⁶ Wilmut et al., *supra* note 6, at 813.

²⁷ An electrical pulse might then be needed to induce the egg's activation.

²⁸ The nucleus of a sperm is much smaller than the nucleus from an egg.

Using sperm from both men or eggs from both women in a same-sex couple might also fail. To date, scientists have not been able to create a viable embryo if the embryo receives its genes from either two eggs or two sperm rather than from one egg and one sperm.²⁹ The failure of previous attempts suggests that genes from eggs and sperm are not interchangeable, that there is something in both the maternal and paternal sex cells that is necessary for normal development.³⁰ For the same reason, one woman's cell with half of its genes might not merge successfully with the other woman's intact egg.

Reproduction using two eggs would probably be especially difficult. Although the egg supplies half of the embryo's chromosomes, it has a full complement of chromosomes until fertilization with a sperm begins. That is, the fertilization process stimulates the egg to divide its forty-six chromosomes into two sets of twenty-three chromosomes, one set of which is relegated to a polar body that degenerates and the other set of which joins with the sperm's chromosomes to form the embryo's chromosomes.³¹ If two eggs join, there would initially be ninety-two chromosomes, and forty-six would have to be lost before a viable embryo could form.

Yet one should hesitate to assume the impossibility of gay reproduction (or any other particular method of reproduction). Until Ian Wilmut and his colleagues announced the birth of Dolly, most experts considered cloning impossible. Genes from adult cells, they reasoned, had been programmed to serve a particular function and could not be reprogrammed to undergo reproductive development in an embryo.³² Just as experts misjudged the possibility of cloning, they might also misjudge the possibility of same-sex reproduction. With regard to combining two eggs or two sperm, for example, it is likely that eggs and sperm each carry elements that distinguish them as

²⁹ James McGrath & Davor Solter, *Completion of Mouse Embryogenesis Requires Both the Maternal and Paternal Genomes*, 37 CELL 179, 182 (1984); K. John McLaughlin et al., *Developmental Consequences of Two Paternal Copies of Imprinted Chromosome Region Distal 7 in Mice*, 173 J. CELLULAR PHYSIOLOGY 242, 242 (1997).

³⁰ LEE M. SILVER, REMAKING EDEN: CLONING AND BEYOND IN A BRAVE NEW WORLD 177-78 (1997); IAN WILMUT ET AL., THE SECOND CREATION: DOLLY AND THE AGE OF BIOLOGICAL CONTROL 287 (2000).

³¹ ALBERTS ET AL., *supra* note 14, at 1022-24.

³² SILVER, *supra* note 30, at 91-92.

maternal or paternal sex cells, and we can anticipate that scientists will one day identify those elements and learn how to replicate them.³³

It is not surprising that a reproductive technique would seem impossible at one time but later become feasible. We do not fully understand how reproduction occurs. Accordingly, we often cannot know whether an experimental failure reflects an effort to do the impossible or an imperfect effort to do the possible. An analogy from organ transplantation illustrates this point. If physicians tried to do a kidney transplant before they understood the role of the immune system in organ rejection,³⁴ they might have wrongly attributed the rejection to the impossibility of transplanting a kidney from one person to another.

³³ One clue that suggests the feasibility of reproduction with two eggs or two sperm is the fact that a person's maternal and paternal genes mix freely when eggs or sperm are created in the person's ovaries or testes. ALBERTS ET AL., *supra* note 14, at 1016-17. We might think that scientists have been unable to form a viable embryo from two eggs or two sperm because the embryo would receive either maternal genes only or paternal genes only, and an embryo might need both maternal and paternal genes. However, if one considers the maternal and paternal nature of the genes from the perspective of the embryo's "grandparents," two eggs or two sperm would have both maternal and paternal genes. In other words, while a given egg has only the woman's genes, and a given sperm has only the man's genes, each egg or sperm has genes that came from the woman's or man's father *and* mother. This is because of the shuffling of genes during the formation of eggs and sperm. Consider the example of egg formation in a woman's ovary. Each ovarian cell has forty-six chromosomes, twenty-three from the woman's mother ("maternal" chromosomes) and twenty-three from the woman's father ("paternal" chromosomes). When an ovarian cell starts to develop into eggs, its maternal and paternal genes are shuffled in two ways. First, when the egg's precursor divides its forty-six chromosomes into two sets of twenty-three for the two eggs, it gives each set some maternal chromosomes and some paternal chromosomes. An egg, for example, might have fifteen maternal chromosomes and eight paternal chromosomes. Or, it might have one maternal chromosome and twenty-two paternal chromosomes. In addition, before the forty-six chromosomes divide into two sets of twenty-three, each pair of chromosomes in the twenty-three pairs of corresponding chromosomes exchange some of their genes. That is, the maternal chromosome in each pair exchanges genes with the paternal chromosome in each pair. Any given chromosome thus has a mixture of maternal and paternal genes. In short, when any two sex cells are combined—whether they are two sperm, two eggs, or an egg and a sperm—the combination will include a mixture of maternal and paternal genes.

³⁴ If one simply transplants an organ from one person into another person, the recipient's immune system will recognize the transplanted organ as "foreign" tissue and attack it, just as it would attack invading bacteria. To prevent this response by the immune system, which would cause the transplant to fail, physicians give organ transplant recipients drugs that suppress the immune system response. These drugs must be taken by the patient for the rest of the patient's life.

It is better to assume that scientists will improve their understanding of the reproductive process sufficiently so that same-sex couples can have children together. By doing so, we can consider in advance the ethical and legal implications of this new reproductive technology and be prepared to deal with those implications when and if the technology develops as expected.³⁵

Assuming that it becomes possible for gay couples to have children who are genetically related to both members of the couple, how should we view that kind of reproduction?

II. INDIVIDUAL AND SOCIETAL BENEFITS FROM GAY REPRODUCTION

A. *Benefits for Gay Parenting*

Most importantly, same-sex couples would benefit profoundly as parents if they could have children genetically related to both members of the couple. Individuals have a strong interest in having children, and they also have a strong interest in having genetically related offspring.³⁶ Genetically related children permit the continuation of one's lineage and heritage in a way that is not possible with biologically unrelated children.

To be sure, many couples are fulfilled by raising adopted children or by having a family life without children. Still, it is understandable that individuals often prefer to have children and to do so with a genetic tie. Currently, through artificial insemination of a woman in a lesbian pair, gay female couples can have a child related to one member of the couple. Similarly, through surrogate motherhood using the sperm of a man in a male same-sex relationship, gay male couples can have a

³⁵ For discussions of efforts by scholars to consider the ethical and legal implications of potential advances in medicine, see generally Michael H. Shapiro, *Is Bioethics Broke?: On the Idea of Ethics and Law "Catching Up" with Technology*, 33 IND. L. REV. 17 (1999); David Orentlicher, *The Misperception That Bioethics and the Law Lag Behind Advances in Biotechnology: A Response to Michael H. Shapiro*, 33 IND. L. REV. 163 (1999).

³⁶ Lori B. Andrews & Lisa Douglass, *Alternative Reproduction*, 65 S. CAL. L. REV. 623, 626-628 (1991); James Lindemann Nelson, *Cloning, Families, and the Reproduction of Persons*, 32 VAL. U. L. REV. 715, 717-18 (1998).

child related to one member of the couple. It would be even more satisfying for many same-sex couples if they could have children related to both members of the couple.³⁷

B. *Avoiding Discrimination on the Basis of Sexual Orientation*

There is a second important benefit for gay couples and for society that might result if same-sex couples had children genetically related to both members of the couple—it might lessen societal discrimination against gays.

While not fully understood, the existence of prejudice is thought to reflect a number of factors, including economic competition,³⁸ the need for a scapegoat,³⁹ the predisposition

³⁷ Although same-sex couples currently can have children that are genetically related to both members of the couple, current alternatives will often be suboptimal or unavailable. What are the current alternatives? If a male-male couple uses sperm from one of the men and eggs from the other man's sister, cousin, or other relative, the child will be genetically related to both members of the couple. Similarly, a lesbian couple could use the eggs of one of the women and the sperm from the other woman's brother, cousin, or other relative. These alternatives are inadequate for several reasons. First, some couples may not have fertile relatives to whom they can turn, or the relatives may be unwilling to provide the needed eggs or sperm. Also, turning to relatives may be unattractive to the couple because of the risk that the donating relative will want to assume a parental role for the child. Orentlicher, *supra* note 8, at 1029. Finally, even with a willing relative who renounces a parental role, this alternative may not be satisfactory. The relative's genes may come from the same parents as those of the member of the couple (in the case of a sibling donor), but having a child with the genes of one's brother (for a lesbian couple) or one's sister (for a male-male couple) is not the same as having a child with one's own genes.

³⁸ Because resources are always limited, people search for ways to achieve material advantage, and derogation of another group is one way to secure that advantage. ELLIOT ARONSON, *THE SOCIAL ANIMAL* 333-34 (8th ed. 1999). Slavery in the Western Hemisphere, for example, rested in the desire of landowners for labor to work their fields and mines. Oliver C. Cox, *Race Relations: Its Meaning, Beginning, and Progress*, in *THEORIES OF RACE AND RACISM: A READER* 70, 72 (Les Back & John Solomos eds., 2000).

Relatedly, ethnic and racial tensions often increase during economically tighter times, when jobs are scarcer. Thus, American attitudes toward Chinese immigrants fluctuated in the nineteenth century, depending on whether the immigrants were competing for desired jobs or were accepting employment that white Americans did not want. ARONSON, *supra*, at 335. During World War II, when military service drained men from the domestic labor force, women were accepted more into the U.S. workforce than they were both before and after the war. RUPERT BROWN, *PREJUDICE: ITS SOCIAL PSYCHOLOGY* 12-13 (1995).

Economic competition has also been at the heart of ethnic conflict in recent years, according to a World Bank study of forty-seven civil wars throughout the world between 1965 and 1999. The study identified as the most important reason

of some people's personalities to prejudice,⁴⁰ and the desire to conform to social norms favoring prejudice.⁴¹ These factors help explain why discrimination both develops and persists across ethnic, racial, religious, and other lines. In addition, one might expect that different forms of discrimination have contributing causes that are specific to their form of discrimination. For example, anti-gay feelings by men may turn on concerns about males establishing their masculinity.⁴² Nevertheless, even though each form of discrimination may have particular contributors, they all share common features. Thus, for example, discrimination against homosexuals serves the same purpose as other kinds of discrimination—the creation and maintenance of hierarchies in society that allow dominant groups to possess economic, political, and social advantages over other groups in society.

In addition to explaining why individuals discriminate, we need to explain why some people rather than others become the targets of discrimination. If a goal of discrimination is to establish and maintain social dominance, how do discrimina-

for civil wars the pursuit of control over trade in licit and illicit commodities, including coffee, diamonds, and narcotics. Joseph Kahn, *World Bank Blames Diamonds and Drugs for Many Wars*, N.Y. TIMES, June 16, 2000, at A12 (citing PAUL COLLIER, WORLD BANK, ECONOMIC CAUSES OF CIVIL CONFLICT AND THEIR IMPLICATIONS FOR POLICY 1, 5-6 (June 15, 2000)), available at <http://www.worldbank.org/research/conflict/papers/civilconflict.htm> (last visited Apr. 19, 2001).

³⁹ When individuals are frustrated in their efforts, they often react by striking at the cause of the frustration. However, in many cases, the cause of frustration is either too powerful or too amorphous to be a target. In such situations, people look for targets that are sufficiently vulnerable and concrete. When the economy is depressed, it may seem easier for whites to blame African-Americans or Latinos for taking jobs than to rail against the business cycle or the Federal Reserve. ARONSON, *supra* note 38, at 337-38. In one study, researchers found an inverse correlation between fortunes in the cotton industry and the number of lynchings in the South between 1882 and 1930. When the value of cotton dropped, lynchings were more frequent. Carl I. Hovland & Robert R. Sears, *Minor Studies of Aggression: VI. Correlation of Lynchings with Economic Indices*, 9 J. PSYCHOLOGY 301, 301-10 (1940).

⁴⁰ Although the nature and extent of this factor's contribution is controversial, it is likely that some people have an increased tendency toward feelings of prejudice. ARONSON, *supra* note 38, at 340-42; BROWN, *supra* note 38, at 19-37.

⁴¹ When social norms favor prejudice, people are more likely to be prejudiced. ARONSON, *supra* note 38, at 342-45.

⁴² Richard Goldstein, *The Hate That Makes Men Straight: Psychoanalysts Probe the Roots of Homophobia*, in HATRED, BIGOTRY, AND PREJUDICE: DEFINITIONS, CAUSES & SOLUTIONS 167-72 (Robert M. Baird & Stuart E. Rosenbaum eds., 1999).

tors choose among other persons for a group to dominate? In answer to that question, it is thought that discrimination lies in the perception of difference.⁴³ In the United States, whites have discriminated against persons of color, men have discriminated against women, and domestically born persons have discriminated against recent immigrants. Similarly, in other countries, like Bosnia-Herzegovina, Ireland, and the Sudan, the public has suffered from strife between members of different ethnic or religious groups. Conversely, people generally are more accepting of those whom they see as similar. Close family ties are particularly illustrative; people generally have their greatest allegiance to family members, the individuals with whom people believe they share the most in common.⁴⁴

I indicated that discrimination lies in the *perception* of difference because any two people are much more alike than they are different. For example, while Chinese, Japanese, and Korean individuals may see themselves as very different from each other, a Caucasian-American may have trouble distinguishing among the three groups because they generally look very much alike to the Caucasian-American. Similarly, while an Irish Catholic and an Irish Protestant might see themselves as very different, an American Jew might have great difficulty distinguishing between the two. We could easily focus on the similarities between any two people as on their differences, and it is rather arbitrary which way we choose.⁴⁵

With respect to the differences between heterosexuals and homosexuals, many people explain their perception of difference in terms of reproductive considerations. Ordinarily, men cannot have children with men, and women cannot have children with women. If homosexuality flourished, it is said, the human race would no longer be able to replace itself, and it would gradually die out. However, as I have suggested, further refinements of cloning techniques respond to this concern. Gay couples could become as fertile as heterosexual couples.

⁴³ BROWN, *supra* note 38, at 41-78; ALBERT MEMMI, RACISM 22-30, 38-52 (2000).

⁴⁴ PIERRE L. VAN DEN BERGHE, THE ETHNIC PHENOMENON 15-36 (1987).

⁴⁵ MARTHA MINOW, MAKING ALL THE DIFFERENCE: INCLUSION, EXCLUSION, AND AMERICAN LAW 53-56, 60-70 (1990); Paula Rothenberg, *The Construction, Deconstruction, and Reconstruction of Difference*, in RACISM: KEY CONCEPTS IN CRITICAL THEORY 281-96 (Leonard Harris ed., 1999).

With such a change, the perception of difference between heterosexuals and homosexuals might diminish substantially. With an increase in homosexual fertility, families headed by same-sex couples will look more like families headed by heterosexual couples—the two parent family with one or more children will become much more common with same-sex couples.⁴⁶ Moreover, the children will be genetically related to both parents instead of to one or neither of the parents. As heterosexual and homosexual families become more alike, they will sense a greater sharing of interests. There is good reason to believe that heterosexual couples will see themselves as being less different and more similar to same-sex couples. Accordingly, prejudice might diminish.⁴⁷

Note that the narrowing of difference does not require that gays start acting more like heterosexuals. Rather, my argument assumes that many gays have a strong desire to raise genetically-related children. In other words, it would be by pursuing their own sense of identity that gays would seem less different from heterosexuals.

I do not mean to suggest that gays are responsible for the discrimination they face or that gays should have to have children to avoid discrimination. Responsibility for prejudice against homosexual persons lies with those who exhibit bias. And it would be better if gays did not have to face discrimination because of their sexual orientation. Nevertheless, we still should be grateful if advances in reproductive technology might contribute to achieving the more tolerant society that already should exist.

⁴⁶ I recognize that many couples, whether heterosexual or homosexual, choose not to have children. Still, it is relevant whether same-sex couples are as likely to have children as heterosexual couples.

⁴⁷ My argument may seem to have some circularity to it. I claim that same-sex reproduction will help diminish discrimination against homosexual persons, but discrimination may impede the access of same-sex couples to the services of infertility clinics. Holly J. Harlow, *Paternalism without Paternity: Discrimination Against Single Women Seeking Artificial Insemination by Donor*, 6 S. CAL. REV. L. & WOMEN'S STUD. 173, 188, 194 (1996). In other words, same-sex reproduction may never have a chance to dissipate anti-gay feelings. I see my argument working as follows. Although some clinics will deny their services to same-sex couples, many will not. Some same-sex reproduction will therefore occur and will help diminish anti-gay feelings. This in turn will lead to more clinics providing their services to same-sex couples and a further diminution in anti-gay sentiment.

Some scholars have suggested a different reaction by the public if same-sex couples start having children genetically related to both partners. They worry that, rather than a softening of hostility toward homosexuality, there will be a backlash against gays. In this view, the possibility of genetic reproduction by same-sex couples will stir up anti-gay feelings.⁴⁸ There is no way to know who is correct, but it is instructive to note that, while court-ordered desegregation in the United States led to an immediate backlash in some parts of the country, it also has led to a diminution of barriers between African-Americans and whites over the longer term.

III. THE LIMITED CONCERNS WITH SAME-SEX COUPLES HAVING CHILDREN GENETICALLY RELATED TO BOTH PARENTS

As discussed above, some important benefits for gay persons and for society would result if same-sex couples can have children genetically related to both members of the couple. Are there, however, any problems with such a development that would counsel against same-sex reproduction?

Some people have expressed concern with gays as parents,⁴⁹ believing that same-sex couples do not make good parents. There are two parts to this concern. First, it is argued, children do better with both a mother and father rather than two mothers or two fathers. Second, it is said, gay parents are more likely to raise their children to be gay.

We also need to consider a third potential concern with same-sex reproduction. Genetic reproduction by homosexual couples will result in the children being predominantly female instead of approximately fifty percent female.⁵⁰

⁴⁸ Eskridge & Stein, *supra* note 21, at 95-113.

⁴⁹ See generally Lynn D. Wardle, *The Potential Impact of Homosexual Parenting on Children*, 1997 U. ILL. L. REV. 833, 852-57; Woody Burton, *A View on Adoptions for Kids*, INDIANAPOLIS STAR, Feb. 13, 2000, at D3.

⁵⁰ For unknown reasons, the percentage of female children born to male-female couples is slightly below forty-nine percent. See UNITED STATES DEPARTMENT OF COMMERCE, UNITED STATES CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES, THE NATIONAL DATA BOOK: 1999, at 76 (119th ed. 1999) (reporting that, from 1980 to 1996, there was a consistent ratio of 105 males born for every 100 females); F. GARY CUNNINGHAM ET AL., WILLIAMS OBSTETRICS 196 (19th ed. 1993) (observing that for every 100 female fetuses that become viable, 106 male fetuses become viable).

A. *The Quality of Gay Parenting*

With regard to the quality of gay parenting, studies to date suggest that children do as well with homosexual parents as with heterosexual parents.⁵¹ Indeed, the American Psychological Association has concluded that children raised by gay parents are not "disadvantaged in any significant respect relative to children of heterosexual parents."⁵²

In one study, for example, researchers found no statistically significant differences in intellectual functioning or behavioral adjustment between children in the two kinds of families.⁵³ In that study, the researchers compared fifteen families headed by a lesbian couple with fifteen families headed by a heterosexual couple.⁵⁴ Although it was a small study, a couple of features suggest that the data are valid. The researchers found that, on most intellectual or behavioral measures, the children with lesbian parents did better, while the children with heterosexual parents did better on the other measures.⁵⁵ The absence of a systematic favoring of children in the heterosexual family makes it less likely that those children really are better off but that the study was too small for the advantages of heterosexual parenting to achieve statistical significance.⁵⁶

⁵¹ Charlotte J. Patterson, *Children of Lesbian and Gay Parents*, 63 CHILD DEV. 1025, 1034 (1992); Richard Green et al., *Lesbian Mothers and Their Children: A Comparison with Solo Parent Heterosexual Mothers and Their Children*, 15 ARCH. SEXUAL BEHAVIOR 167, 179-83 (1986); Marc C. Elovitz, *Adoption by Lesbian and Gay People: The Use and Mis-Use of Social Science Research*, 2 DUKE J. GENDER L. & POL'Y 207, 211-15 (1995); Michael S. Wald, *Same-Sex Copies: Marriage, Families, and Children*, Stanford Public Law and Legal Theory Working Paper Series, Social Science Research Network Electronic Library, at http://papers.ssrn.com/paper.taf?abstract_id=203649 (last visited Apr. 19, 2001).

⁵² AMERICAN PSYCHOLOGICAL ASSOCIATION, LESBIAN AND GAY PARENTING: A RESOURCE FOR PSYCHOLOGISTS (1995), at <http://www.apa.org/pi/parent.html> (last visited Apr. 19, 2001).

⁵³ David K. Flaks et al., *Lesbians Choosing Motherhood: A Comparative Study of Lesbian and Heterosexual Parents and Their Children*, 31 DEVELOPMENTAL PSYCHOLOGY 105, 109-11 (1995).

⁵⁴ *Id.* at 107.

⁵⁵ *Id.* at 112 (reporting on several measures, including standardized measures of social competence and IQ testing).

⁵⁶ *Id.* In other words, in a study with a smaller number of subjects, researchers might find differences between two groups, but the small numbers mean that the differences could be due to chance rather than to a real difference between the two groups. This is like the example of flipping a coin ten times and getting eight tails—with only ten flips, one could not conclude that the coin is imbalanced. One

The researchers also limited the possibility that their results were affected by differences between the families other than the sexual orientation of the parents—the families were matched in terms of their children's sex and age and in terms of the parents' race, income, and educational level.⁵⁷

In another study that included eighty families, researchers found that parental sexual orientation did not affect the children's behavior.⁵⁸ All of the families in the study had children with the help of a single sperm bank.⁵⁹ The eighty families comprised thirty-four families headed by a lesbian couple, twenty-one by a heterosexual couple, sixteen by a single lesbian mother, and nine by a single heterosexual mother.⁶⁰ Parental sexual orientation also did not affect the children's success in school and other social settings, including peer interactions and extracurricular activities.⁶¹

In addition to looking at how well children fare with homosexual parents, some of the researchers considered whether homosexual parents exhibit good parenting skills. The data do not show any superiority in parenting skills by heterosexual individuals.⁶²

Although the studies do not indicate any problems with parenting by gay couples, the studies have their methodological weaknesses, and are not definitive.⁶³ Importantly, we do not know whether the families with homosexual parents were representative of all families with homosexual parents, nor do we know whether the families with heterosexual parents were representative of all families with heterosexual parents. In some studies, for example, the participating families were not randomly chosen but came from people who responded to ad-

would need many more flips before concluding that having eighty percent tails was a real effect of an imbalanced coin (i.e., a statistically significant result).

⁵⁷ *Id.* at 107.

⁵⁸ Raymond W. Chan et al., *Psychosocial Adjustment Among Children Conceived via Donor Insemination by Lesbian and Heterosexual Mothers*, 69 *CHILD DEVELOPMENT* 443, 453 (1998).

⁵⁹ *Id.* at 444-45.

⁶⁰ *Id.* at 445.

⁶¹ *Id.* at 453-55.

⁶² Flaks et al., *supra* note 53, at 112.

⁶³ Philip A. Belcastro et al., *A Review of Data Based Studies Addressing the Effects of Homosexual Parenting on Children's Sexual and Social Functioning*, 20 *J. DIVORCE & REMARRIAGE* 105, 119-20 (1993).

vertisements recruiting for the studies or who were identified through friendship networks or professional contacts.⁶⁴ In addition, the studies generally tend to involve comparisons of heterosexual parenting with lesbian parenting, with less data on parenting by homosexual males.⁶⁵ If there are important differences between lesbian and gay male parenting (or between female and male parenting generally), there might be important differences between heterosexual and homosexual parenting that were missed by the studies.

Nevertheless, even assuming that real differences exist between heterosexual and homosexual parents, that would not be grounds for denying parenthood to gay persons. The interest in having children is of fundamental importance,⁶⁶ and we do not ordinarily reject reproduction for people who might not be the best parents. Couples whose poverty limits the opportunities of their children, or whose DNA gives their children a substantial likelihood of a serious genetic disease, may become parents if they choose. Moreover, it is difficult to argue that children are harmed by being born from the genes of two gay parents and that we would be acting in the interests of children if we prevent same-sex couples from reproducing. For those children, there is no alternative to having homosexual parents. Either they are born to gay parents or they do not exist at all.⁶⁷

This is very different, then, from the example of adoption, where quality of parenting can matter in deciding whether a couple should assume responsibility for rearing a child. With adoption, we may want to give preference to people who will make the best parents for the child because the child already exists, and we have a choice as to which people will raise the child.⁶⁸ When the child does not exist, however, it cannot be

⁶⁴ Flaks et al., *supra* note 53, at 107; Green et al., *supra* note 51, at 169.

⁶⁵ The research focus on gay female parenting probably reflects the fact that it is easier for gay women than gay men to have children.

⁶⁶ Skinner v. Okla., 316 U.S. 535, 541 (1942) (describing the right to reproduce as "one of the basic civil rights of man"); JOHN A. ROBERTSON, CHILDREN OF CHOICE: FREEDOM AND THE NEW REPRODUCTIVE TECHNOLOGIES 24-25 (1994).

⁶⁷ Orentlicher, *supra* note 8, at 1023; Wald, *supra* note 51, at 11. Of course, we also cannot argue that it is in children's interests to be born to same-sex parents. But, this Article is responding to the argument that it harms the children to be born to same-sex parents.

⁶⁸ This is not to suggest that adoption agencies should give preference to het-

born to different parents.

In short, there is no evidence that same-sex couples provide poorer quality parenting than do heterosexual couples. But even if they did, that would not be grounds for preventing same-sex couples from having genetically related children.

B. *The Sexual Orientation of the Children of Gay Parents*

As to the concern that gay parents will raise their children to be gay—either by encouraging such a choice or by passing on a genetic predisposition to be gay—it is not clear how much effect parental sexual orientation has on a person's own sexual orientation. Studies of sexual orientation indicate that an overwhelming majority of children grow up to identify themselves as heterosexual, whether or not their parents are heterosexual.⁶⁹ In two of the leading studies in which researchers examined the sexual orientation of homosexual persons' children, one study looked at adult sons of gay men, and the other study looked at adult children of gay women. In both studies, more than ninety percent of the children identified themselves as having a heterosexual orientation.⁷⁰

While these data suggest a small role of parental sexual orientation, other considerations suggest a greater effect of parental sexual orientation on a child's sexual orientation. Although children of gays may not report a homosexual identity, they appear to be more likely to consider having same-sex relationships, and they are more likely to report having en-

erosexual couples over homosexual couples. The point is that society cannot conclude from the practice of denying some couples parenthood in the adoption setting that it also should deny some couples parenthood in the context of their efforts to have genetically related children.

⁶⁹ J. Michael Bailey et al., *Sexual Orientation of Adult Sons of Gay Fathers*, 31 DEVELOPMENTAL PSYCHOLOGY 124, 124 (1995); Susan Golombok & Fiona Tasker, *Do Parents Influence the Sexual Orientation of Their Children? Findings from a Longitudinal Study of Lesbian Families*, 32 DEVELOPMENTAL PSYCHOLOGY 3, 3 (1996); Cheryl A. Parks, *Lesbian Parenthood: A Review of the Literature*, 68 AM. J. ORTHOPSYCHIATRY 376, 383 (1998); see also Julie Shapiro, *Custody and Conduct: How the Law Fails Lesbian and Gay Parents and Their Children*, 71 IND. L.J. 623, 650-54 (1996) (discussing the empirical literature on the sexual orientation of children of gay parents).

⁷⁰ Bailey et al., *supra* note 69, at 126; Golombok & Tasker, *supra* note 69, at 7-8.

gaged in same-sex relationships.⁷¹ Moreover, the studies to date likely underestimate the effect of parental sexual orientation. For most children with a homosexual parent, the other parent has probably been heterosexual. And, children with gay fathers often are raised primarily by heterosexual mothers after their parents separate or divorce.⁷² With same-sex reproduction, both parents would be homosexual. The children would therefore receive stronger genetic⁷³ and environmental inputs for homosexual orientation.

Still, even if there is a considerable effect of parental orientation on a person's sexual orientation, it is not clear why that should be a concern. Before we could deny genetic parenthood to same-sex couples on that basis, we would need to identify a significant problem with children developing a homosexual orientation.⁷⁴ Indeed, when we encourage other couples to be careful about the way in which they reproduce, we can point to tangible reasons for caution. For example, physicians make genetic testing available to detect the gene for Huntington's disease or Tay Sachs disease because those diseases are devastating in their morbidity and mortality. In contrast, being gay does not lead to any differences that affect one's well-being. Homosexual individuals can be as healthy and productive as heterosexual persons.

To be sure, one can identify an important consequence of homosexuality for a person's health. Gay individuals are unable to reproduce genetically with a same-sex partner. In other words, same-sex couples who want to have children are infertile—they must turn to adoption, artificial insemination, or surrogate motherhood to have children.⁷⁵ However, the ques-

⁷¹ Golombok & Tasker, *supra* note 69, at 7-8.

⁷² Bailey et al., *supra* note 69, at 126.

⁷³ J. Michael Bailey & Richard C. Pillard, *A Genetic Study of Male Sexual Orientation*, 48 ARCH. GEN. PSYCHIATRY 1089, 1094-95 (1991); J. Michael Bailey et al., *Heritable Factors Influence Sexual Orientation in Women*, 50 ARCH. GEN. PSYCHIATRY 217, 222 (1993) (both studies reporting a substantial genetic role in sexual orientation).

⁷⁴ *Cf.*, *Romer v. Evans*, 517 U.S. 620, 632-35 (1996) (finding discrimination against homosexuals to be irrational without any basis for the discrimination save animosity towards homosexuality).

⁷⁵ The Supreme Court has recognized the loss of the ability to reproduce as a disability under the Americans with Disabilities Act. *See Bragdon v. Abbott*, 524 U.S. 624, 637-42 (1998) (finding that asymptomatic HIV-infection constitutes a disability because the risk of transmitting HIV to a child limits an infected

tion here is whether gay couples should be able to reproduce genetically, to overcome their infertility, with the aid of medical technology.⁷⁶

One might also point to an apparent health problem with being gay. Homosexual men in the United States have had a higher risk of HIV infection than heterosexual persons. However, that risk reflects their greater use of unsafe sex practices,⁷⁷ not the fact that they are homosexual. Accordingly, the way to deal with the problem of HIV infection is to promote safer sex practices, not to prevent the birth of gay men.

To the extent that being gay is problematic, it is problematic because gay individuals suffer from social stigmatization. This is a real problem, but the problem lies with those who stigmatize gays, not with those who are gay. Discouraging homosexual reproduction because of prejudice against gays would be like dealing with racial prejudice by discouraging reproduction among African-Americans.⁷⁸

C. *Concerns with Gender Imbalance*

Genetic reproduction by same-sex couples raises the possibility of gender imbalance in their offspring. Recall that men have XY sex chromosomes, and women have XX sex chromosomes. Thus, if a lesbian couple has genetically-related children, all of the children will be female. Each parent will provide an X chromosome to the children. With male same-sex couples, we might expect two-thirds of the children to be male. Since each male will give half the children an X chromosome and half the children a Y chromosome, one-half of the embryos would be XY,⁷⁹ one-fourth would be XX, and one-fourth would

person's ability to reproduce).

⁷⁶ In addition, although infertility can cause substantial distress, a same-sex couple's infertility is not so serious a problem that it would justify efforts to prevent the birth of gay individuals.

⁷⁷ David L. Chambers, *Gay Men, AIDS, and the Code of the Condom*, 29 HARV. C.R.-C.L. L. REV. 353, 353-54 (1993).

⁷⁸ Cf., *Palmore v. Sidoti*, 466 U.S. 429, 433 (1984) (rejecting child custody decisions that reflect societal prejudice).

⁷⁹ One-fourth of the children would receive an X chromosome from the first parent and a Y chromosome from the second parent, and one-fourth would receive a Y chromosome from the first parent and an X chromosome from the second parent.

be YY. The YY embryos would not be viable, so two-thirds of the viable embryos would be XY, or male (one-half XY to one-fourth XX). Or, physicians helping gay male couples have children might select among the embryos that are created for an even balance between female and male embryos. Whether male-male couples have sixty-seven percent or fifty percent male children, we would expect more female children overall because of the one hundred percent female children from lesbian couples.

Does this expected gender imbalance indicate that gay couples should not have children genetically related to both parents? In many other situations, ethicists condemn reproductive practices that would result in a gender imbalance (e.g., abortion of female fetuses or artificial insemination only with sperm that have a Y chromosome by parents who desire a boy⁸⁰). However, there is a difference between pursuing gender imbalance as a goal and gender imbalance occurring as an incidental consequence of a morally acceptable goal, in this case the desire to have genetically related children.

For example, consider the use of embryo selection to avoid X-linked genetic diseases like Lesch-Nyhan syndrome.⁸¹ With those diseases, women carry the abnormal gene in one of their X chromosomes, but they do not have symptoms of disease because their other X chromosome carries a normal version of the gene. Symptoms of the disease show up in half of the women's sons—a son has a fifty percent chance of inheriting the woman's defective X chromosome, and the Y chromosome from his father cannot compensate for the abnormal gene. Often the abnormal gene can be detected with amniocentesis or other prenatal screening, and the couple can abort the fetus to avoid having a child with the disease. However, if the abnormal gene cannot be detected by prenatal testing, the only way to have genetically related children with none of them having the disease is to have only daughters. Even though a daughter also

⁸⁰ Council on Ethical and Judicial Affairs, *Ethical Issues Related to Prenatal Genetic Testing*, 3 ARCH. FAM. MED. 633, 636-37 (1994).

⁸¹ Children with Lesch-Nyhan syndrome suffer from compulsive self-mutilation, mental retardation, muscle spasticity, and death at a relatively young age. Beverly S. Mitchell & Michael S. Herschfield, *Disorders of Purine and Pyrimidine Metabolism*, in CECIL TEXTBOOK OF MEDICINE 1114, 1116 (J. Claude Bennett & Fred Plum eds., 20th ed. 1996).

has a fifty percent chance of inheriting the mother's abnormal gene, the daughter's other X chromosome from her father will compensate for the abnormal gene. She will therefore be an unaffected carrier of the gene, like her mother.⁸² To ensure that only daughters are born, the couple would reproduce with IVF, and their physician would implant only the female embryos in the woman's reproductive tract.⁸³ The male embryos, with their fifty percent chance of having the abnormal gene, would be discarded.⁸⁴ This practice is generally considered acceptable because the favoring of female children is not the goal of the prenatal selection. Rather, it is the incidental consequence of the goal of giving birth to healthy children.⁸⁵

With reproduction by same-sex couples, any gender imbalance would also not be a goal of the reproduction. Rather, the imbalance would be an unintended consequence of the desire to have genetically related children. Accordingly, under the usual analysis, which is a form of double-effect analysis,⁸⁶ gender imbalance should not be an obstacle to genetic reproduction by same-sex couples.

⁸² If the father has the disease, daughters can receive two X chromosomes with the defective gene, but having two copies of the defective gene happens rarely and, with some genes, will usually result in a spontaneous miscarriage.

⁸³ If there were prenatal genetic testing for the disease, the couple could conceive naturally and then use the testing to discover whether their fetus had the defective gene.

⁸⁴ Even though examination of the embryo's DNA cannot identify whether the embryo carries the defective gene, it can identify whether the embryo is female or male.

⁸⁵ The Ethics Committee of the American Society of Reproductive Medicine, *Sex Selection and Preimplantation Genetic Diagnosis*, 72 FERTILITY & STERILITY 595, 596-97 (1999).

⁸⁶ The principle of double effect permits an act that has harmful effects if (1) the act is not intrinsically wrong, (2) the act is done with an intent to promote a good effect, (3) the harmful effect, though foreseen, is an unintended consequence of the act, (4) the harmful effect is not the means to the end of bringing about the good effect, and (5) the good effect outweighs the bad effect. Thus, for example, a physician can administer a high dose of a drug to relieve a patient's pain even though the drug might kill the patient. Administering pain relief is an intrinsically good thing to do, the death would not be intended, and the patient's death is not necessary to ensure relief of the patient's pain. TOM L. BEAUCHAMP & JAMES F. CHILDRESS, *PRINCIPLES OF BIOMEDICAL ETHICS* 206-07 (Oxford University Press, 4th ed. 1994). Assisted suicide, on the other hand, could not be justified under the principle of double effect. The good effect of relieving the patient's suffering is brought about by the bad effect of killing the patient.

Still, even if the gender imbalance is not intended, we might be concerned about it. With gender selection to avoid genetic disease, the numbers are sufficiently small that they will not have much of an effect on overall gender balance in society. Genetic reproduction by same-sex couples, on the other hand, would probably be much more common. According to recent estimates, gays constitute between two percent and eight percent of the population,⁸⁷ and the numbers might be higher if social pressures did not discourage people from acting on their homosexual feelings. If same-sex couples reproduce as often as heterosexual couples, there might be a significant impact on the gender balance of children, especially if gay female couples have more children than gay male couples. If there are more girls born than boys, it might affect society's view of the two sexes in an unhealthy way. Accordingly, we might conclude that same-sex couples could adopt children, or have children through artificial insemination (for lesbian couples) or surrogate motherhood (for male-male couples) but that they should not reproduce with just their own genes.⁸⁸

In the end, possible gender imbalance does not seem to be a sufficient reason to discourage same-sex couples from having children genetically related to both members of the couple. The gender imbalance might not in fact amount to much in terms of magnitude. And, even if there were a significant gender imbalance, the imbalance might not actually lead to problems in the way society views or treats men and women. Indeed, a practice favoring females might balance other social practices favoring men. Given the strong interest of couples in having genetically-related children, there should be fairly clear evidence that serious problems would develop and that the problems would outweigh the reproductive interests of gay individ-

⁸⁷ EDWARD O. LAUMANN ET AL., *THE SOCIAL ORGANIZATION OF SEXUALITY: SEXUAL PRACTICES IN THE UNITED STATES* 283-301 (1994). Current data give us a range rather than a specific percentage of homosexuality in the United States population because it is not clear how one should define homosexuality. There is no diagnostic test for homosexuality, as there is for diabetes or hypertension, and one can define sexual orientation in terms of the individual's self-identity, whether the individual is attracted to persons of the same sex, or whether the individual has engaged in sexual relationships with persons of the same sex.

⁸⁸ This argument against same-sex reproduction ties into feature (5), *supra* note 86, of double-effect analysis, which requires that the intended good effects of the practice in question outweigh the unintended bad effects.

uals. With same-sex couples having children, the fears are only speculative.

IV. LEGAL ISSUES FOR SAME-SEX REPRODUCTION

A. *Problems from Legal Efforts to Prevent Human Cloning*

Although moral analysis suggests an important role for methods that will permit genetic reproduction by same-sex couples, legislation might preclude the development of those methods. Some states have already passed laws that prohibit human cloning, and bills before Congress would also ban the use of cloning techniques for human reproduction. These anti-cloning statutes and bills could have the incidental effect of preventing gay reproduction because they define cloning in a way that might include genetic reproduction by same-sex couples.

The statutes and bills emphasize two aspects of cloning in their definitions—first, that the child's genes come from a single adult's "somatic" cell,⁸⁹ rather than from a father's sperm and a mother's egg, and second, that an enucleated, rather than intact egg, is used to create an embryo. For example, a U.S. Senate bill, the "Human Cloning Prohibition Act,"⁹⁰ (the "Act") would make unlawful procedures that involve the transfer of genes from a human somatic cell to an enucleated egg for the purpose of initiating a pregnancy.⁹¹

⁸⁹ Somatic cells refer to the full range of cells in the body other than eggs, sperm, and other cells involved in reproduction. Thus, somatic cells include cells from skin, muscle, and bone, as well as kidney, liver, and brain.

⁹⁰ S. 704, 107th Cong. (2001).

⁹¹ According to the legislative text, the Act applies to "somatic cell nuclear transfer." *Id.* § 2(1)(a). Furthermore, "somatic cell nuclear transfer" is defined as "transferring the nucleus of a human somatic cell into an [egg] from which the nucleus has been removed or rendered inert." *Id.* § 2(6). The emphasis is on the nucleus of the cell because that is the part of the cell where the genes are found. A House bill, the "Ban on Human Cloning Act," also prohibits the transfer of "the nucleus of a human somatic cell into an egg cell from which the nucleus has been removed." H.R. 1260, 107th Cong. (2001). The Senate bill, but not the House bill, would deny federal funding for research into human cloning. S. 704, at § 3(b).

Note that cloning in sheep and other mammals has been performed by combining the adult's entire cell with an enucleated egg. Cloning, in other words, has involved transfer of a complete cell, not just transfer of a cell's nucleus. This nuance does not change the implications of anti-cloning legislation for human cloning or gay reproduction. Since a nucleus is transferred when an entire cell is fused

This definition was adopted because, as discussed, cloning entails the introduction of genes from an individual's somatic cell into an egg whose genes-containing nucleus has been removed (i.e., an enucleated egg).

However, the proposed legal definition of cloning may not distinguish between transferring a full complement of genes from a single somatic cell and transferring half sets of genes from two somatic cells. The Act simply would prohibit gene transfers from a somatic cell. Since biological reproduction by gays would probably be accomplished through genetic transfers from two somatic cells,⁹² the Act would likely be seen as reaching procreation by same-sex couples.⁹³ There is, however, some room to read the Act less strictly. The Act bars the transfer of "the nucleus" of a somatic cell, and same-sex reproduction would involve transfer of only part of the nucleus. Nevertheless, many scientists will probably be deterred by the possibility that prosecutors and courts will read the Act more strictly.

While the Senate bill could interfere with gay reproduction if passed, a California law already would prevent gay reproduction in the state. That law prohibits cloning, with cloning defined as creating or attempting to create a human being by transferring genes from any human cell (whether somatic or not) into an enucleated egg.⁹⁴ Again, the statutory definition

with an enucleated egg, prohibitions on the transfer of nuclei would apply to transfers of an entire cell in cloning for human reproduction. With frogs, cloning has been performed by transferring only the nucleus into an enucleated egg, CLONING HUMAN BEINGS, *supra* note 6, at 17-18, and the legislation is probably intended to apply when human cloning involves transfer of the nucleus without the rest of the somatic cell. Also, even though cloning in mammals has so far occurred with entire somatic cells, rather than just their nuclei, scientists refer to the process as "nuclear transfer." Wilmut et al., *supra* note 6, at 811; Mario R. Capecchi, *How Close Are We to Implementing Gene Targeting in Animals Other than the Mouse?*, 97 PROC. NAT'L ACAD. SCI. 956, 956 (2000).

⁹² See *supra* text accompanying notes 21-23.

⁹³ Gay reproduction might also occur in other ways, see *supra* text accompanying notes 24-28, but those alternatives are less likely. See *infra* text accompanying note 115. This Article discusses how legislation would apply to the alternative methods. See *infra* text accompanying notes 107-114.

⁹⁴ More precisely, the statute defines cloning as "the practice of creating or attempting to create a human being by transferring the nucleus from a human cell from whatever source into a human egg cell from which the nucleus has been removed." CAL. HEALTH & SAFETY CODE § 24185(c) (2000); see also LA. REV. STAT. ANN. § 40:1299.36.1-2 (2000) (banning cloning with the same definition of cloning

does not distinguish between transferring a full set of genes or two half sets of genes into the egg.⁹⁵

The recommendations of the National Bioethics Advisory Commission (the "Commission") reinforce the proposed federal law on cloning funding and the existing state cloning bans. The Commission urged Congress to enact legislation that would prohibit attempts to create a child by transferring genes from somatic cells. The Commission also called both for scientists to refrain from any attempts to create a child by transferring genes from somatic cells and for a moratorium on federal funding for such attempts.⁹⁶

In short, the Human Cloning Prohibition Act, California's cloning prohibition, and other laws aimed at human cloning might have the undesirable effect of halting the development of reproductive technology for same-sex couples.⁹⁷

as California); MICH. COMP. LAWS § 333.16274 (1999) (banning cloning with a definition of cloning similar to that of the U.S. Senate bill). Again, there is some ambiguity since same-sex reproduction would involve transfer of parts of nuclei, not entire nuclei. Rhode Island's law also has some ambiguity. On one hand, it bans transfer of a somatic cell nucleus into an enucleated egg. R.I. GEN. LAWS § 23-16.4-2(a) & (b)(1) (2000). This ban would seemingly apply in the same way as the California and Michigan laws to cloning. On the other hand, the Rhode Island law states that it does not prohibit "medical procedures used to assist a woman in becoming or remaining pregnant, so long as that pregnancy is not specifically intended to result in the production of a child who is genetically identical to another human being, living or dead." *Id.* § 23-16.4-2(c)(2)(i). Since same-sex reproduction does not produce a child genetically identical to another person, it might avoid the reach of the Rhode Island statute.

Note that the California, Louisiana, and Rhode Island laws all expire in 2003 unless reenacted. CAL. HEALTH & SAFETY CODE § 24185; LA. REV. STAT. ANN. § 40:1299.36; R.I. GEN. LAWS § 23-16.4-4.

⁹⁵ Moreover, the law does not distinguish between genes taken from a somatic cell and genes taken from sperm or eggs, a feature whose significance I will discuss. See *infra* text accompanying notes 107-111.

⁹⁶ CLONING HUMAN BEINGS, *supra* note 6, at iii-iv. There is some ambiguity in the Commission's recommendations. Sometimes, it speaks of prohibiting "somatic cell nuclear transfer," sometimes it speaks of prohibiting "somatic cell nuclear transfer cloning." CLONING HUMAN BEINGS, *supra* note 6, at iii-iv. Same-sex reproduction would involve somatic cell nuclear transfer but not somatic cell nuclear transfer cloning.

⁹⁷ To be sure, current legislation may not prevent human cloning or other uses of cloning technology. According to recent media reports, efforts to clone humans are proceeding without federal funds and in states that have not banned cloning. See Margaret Talbot, *A Desire to Duplicate*, N.Y. TIMES MAGAZINE, Feb. 4, 2001, at 40, 41; Gibbs, *supra* note 6, at 46, 47-48. Nevertheless, even though some scientists are moving forward with human cloning, most scientists are not trying to make human cloning a reality because of societal opposition. Moreover, if a human

This leads to an important question: How should lawmakers distinguish between legitimate and illegitimate uses of cloning technology when used for reproductive purposes? If lawmakers want to prevent human cloning, how can they do so without preventing genetic reproduction by same-sex couples?

B. *Responding to the Problems with Current Laws and Bills*

To avoid the undesirable consequences of current cloning legislation, cloning laws could be written even more narrowly, so their language applies only to human cloning and not to other forms of reproduction that involve the transfer of genes from somatic cells into enucleated eggs.⁹⁸ Or, a specific exception in cloning laws could be included for genetic reproduction by same-sex couples.⁹⁹

But, even this approach might not be satisfactory. As the discovery of penicillin and other therapies has demonstrated, advances in medicine often proceed by serendipity.¹⁰⁰ We have a limited understanding of the body's workings, and that makes it difficult to predict where the next breakthroughs will occur. Consequently, when lawmakers try to dictate the kinds of research that scientists can and cannot do, they may close off important paths to progress.¹⁰¹ This unfortunate effect of technological regulation was anticipated when anti-cloning legislation was proposed. After the cloning of Dolly provoked

is cloned, more comprehensive legislation is likely to be enacted.

⁹⁸ I do not mean to suggest that I support bans on cloning. If cloning can be done safely, I believe it should be permitted. Orentlicher, *supra* note 8, at 1039-1040. However, if cloning is prohibited, the prohibition should not extend to genetic reproduction by same-sex couples.

⁹⁹ From a political standpoint, it will likely be more feasible to write cloning laws that do not cover genetic reproduction by gay persons than to write into law an explicit protection for same-sex couples.

¹⁰⁰ Alexander Fleming discovered penicillin when a penicillin-producing mold contaminated petri dishes in his laboratory that were being used to grow bacteria. See generally John W. Henderson, *The Yellow Brick Road to Penicillin: A Story of Serendipity*, 72 MAYO CLINIC PROC. 683 (1997); see also Stephanie J. Hong, Note, And "Cloning" Makes Three: A Constitutional Comparison Between Cloning and Other Assisted Reproductive Technologies, 26 HASTINGS CONST. L.Q. 741, 782 & n.338 (1999) (describing the serendipitous discoveries of x-rays and microwaves).

¹⁰¹ Jerome P. Kassirer & Nadia A. Rosenthal, *Should Human Cloning Research Be Off Limits?*, 338 NEW ENG. J. MED. 905, 905 (1998); John A. Robertson, *Human Cloning and the Challenge of Regulation*, 339 NEW ENG. J. MED. 119, 121 (1998).

widespread concern about human cloning, many commentators called for temporary or permanent bans on cloning.¹⁰² At the same time, other writers warned that anti-cloning legislation could jeopardize promising medical treatments. The methods used to clone a new person might also be used to develop cures for cancer and other serious diseases.¹⁰³ Lawmakers responded to these warnings by drafting cloning bills that would restrict the use of cloning technology only in the context of human reproduction. However, as I have discussed, even these narrowly written laws could stifle the development of reproductive methods that would greatly help gay persons and that would not entail human cloning.

Just as previous efforts to write cloning legislation narrowly have been inadequate, so might future efforts. Although I have identified one way in which cloning legislation would have to be modified, there may be other needed modifications that I have not anticipated.

To avoid the problem of legislative imprecision, George Annas has suggested a regulatory approach. He has proposed that regulation occur in the form of an administrative agency that could judge each use of cloning technology on a case-by-case basis.¹⁰⁴ Congress or state legislatures would not need to anticipate all possible uses of cloning techniques, but the public would still be protected from inappropriate research or practice.

This alternative approach has been used successfully in other areas of medical regulation. For example, to address the risk to patients from unsafe drugs, Congress has not decided which drugs should or should not be studied or approved for use. Rather, it has authorized the Food and Drug Administration (the "FDA") to protect patients, and it relied on the FDA to evaluate each proposed drug on an individual basis.¹⁰⁵

¹⁰² Vernon J. Ehlers, *The Case Against Human Cloning*, 27 HOFSTRA L. REV. 523, 525-28 (1999); Kass, *supra* note 7, at 701-02.

¹⁰³ Kassirer & Rosenthal, *supra* note 101, at 905 (discussing the role of cloning techniques for treatment of leukemia, genetic disorders, and diabetes).

¹⁰⁴ George J. Annas, *Regulatory Models for Human Embryo Cloning: The Free Market, Professional Guidelines, and Government Restrictions*, 4 KENNEDY INST. ETHICS J. 235, 245-46 (1994).

¹⁰⁵ Sometimes, Congress does address specific drugs in its legislation, and its efforts can provoke controversy, as it has with its ban on the use of marijuana for medical purposes. See generally Allison L. Bergstrom, *Medical Use of Marijuana: A*

C. *Qualifications to the Legal Analysis*

While current anti-cloning statutes and bills could stifle research on, and development of, genetic reproduction for same-sex couples, the effects of the laws would partly depend on how same-sex reproduction actually takes place. If same-sex procreation occurred without using somatic cells or without using enucleated eggs, then it might escape the reach of the anti-cloning statutes.

Recall that there are different mechanisms for same-sex reproduction. The most likely method would be very similar to cloning. Instead of deriving the embryo's genes from a single parent's somatic cell, physicians might derive the embryo's genes from two parents' somatic cells. As discussed, anti-cloning legislation might extend to this approach because it involves the transfer of genes from somatic cells to enucleated eggs.¹⁰⁶

If same-sex reproduction occurred by using two sperm or two eggs,¹⁰⁷ anti-cloning legislation would not apply to reproduction by two women, and it might or might not apply to reproduction by two men. If two women could reproduce by combining an egg from each woman, then physicians would not need to use an enucleated egg, and the standard anti-cloning laws would not be triggered. The recommendations of the National Bioethics Advisory Commission would also not be triggered because its recommendations apply only to reproduction with genes from somatic cells.¹⁰⁸

For male-male couples, however, some anti-cloning legislation would apply. The California law, which has language similar to that of other state laws or bills,¹⁰⁹ would prohibit genetic reproduction by male-male couples because it precludes the merging of two sperm with an enucleated egg. That is, even though cloning is problematic because it entails the transfer of genes from a somatic cell into an enucleated egg, the

Look at *Federal & State Responses to California's Compassionate Use Act*, 2 DEPAUL J. HEALTH CARE L. 155 (1997).

¹⁰⁶ See *supra* Part IV.A.

¹⁰⁷ See *supra* text accompanying notes 24-28.

¹⁰⁸ See *supra* text accompanying note 96.

¹⁰⁹ See, e.g., LA. REV. STAT. ANN. § 40:1299.36.1-2 (2000) (same language as California law).

California statute does not distinguish between genes taken from somatic cells and genes taken from sperm cells. California prohibits the transfer of genes from any kind of human cell into an enucleated egg, without limiting the prohibition to transfers from somatic cells.¹¹⁰ In contrast, the proposed federal Act (and the Commission's recommendations) would not apply to reproduction with two sperm cells because none of the child's genes would come from a somatic cell.

Finally, recall that, for lesbian couples, a third mechanism for genetic reproduction might be possible. Physicians might be able to combine an intact egg from one woman with a somatic cell from the other woman (after removing half of the chromosomes from the somatic cell).¹¹¹

This method for female-female reproduction will escape all of the legislation but not all legislative proposals. Existing state laws would not apply because, even though there would still be some genetic transfer from a somatic cell, the transfer would be to an intact egg, and the laws prohibit gene transfer only when the genes are received by an enucleated egg.¹¹² Like the state statutes, the U.S. Senate bill distinguishes between gay reproduction that uses an enucleated egg and gay reproduction that does not.¹¹³ Accordingly, lesbian procreation with one somatic cell and one intact egg would not be prohibited by the proposed federal law. The recommendations of the Commission, however, would probably apply. The Commission's recommendations do not distinguish transfer of somatic cell genes to an enucleated egg from transfer of somatic cell genes to an intact egg. The recommendations apparently reach any transfer of somatic cell genes.¹¹⁴ Accordingly, the recommendations would apply to female-female reproduction involving one somatic cell and one intact egg.

¹¹⁰ Recall that the California law prohibits "the practice of creating or attempting to create a human being by transferring the nucleus from a human cell from whatever source into a human egg cell from which the nucleus has been removed." See *supra* note 94.

¹¹¹ See *supra* text accompanying notes 26-28.

¹¹² See *supra* note 94.

¹¹³ See *supra* note 91.

¹¹⁴ There is, however, some ambiguity on this point in the Commission's recommendations. See *supra* note 96.

In short, while same-sex reproduction with two eggs, two sperm, or one egg and one somatic cell would be less affected by anti-cloning laws than would be same-sex reproduction with two somatic cells, it would still be affected somewhat, particularly when reproduction by a male-male couple is involved.

Moreover, scientific considerations suggest that same-sex reproduction is more likely to occur by using two somatic cells and an enucleated egg than by using the alternative methods. While the alternative approaches to same-sex reproduction are plausible, experiments indicate that these alternatives may be less promising than the method of fusing an enucleated egg with two somatic cells. As mentioned, scientists have not been able to create a viable embryo if the embryo receives its genes from either two eggs or two sperm rather than from one egg and one sperm.¹¹⁵ This suggests that, when eggs and sperm are formed, they are given genetic features that require them to combine with their complementary sex cell. If that is the case, then an egg would not only be unable to combine with another egg, it would also be unable to combine with a somatic cell. In other words, the egg might be programmed to combine only with a sperm cell. When two somatic cells contribute half sets of genes, on the other hand, neither cell would contain the special genetic features of egg or sperm cells that might interfere with same-sex reproduction. While better understanding of egg and sperm formation may enable scientists to circumvent obstacles to same-sex reproduction with two eggs or two sperm, we might expect same-sex reproduction with two somatic cells to occur earlier. Because that method is much more akin to the method of cloning, it should be attainable sooner than methods that require more complicated techniques.

CONCLUSION

As researchers advance their understanding of reproduction, they may be able to develop techniques that would permit gay couples to have children genetically related to both members of the couple. Such a development would serve not only the reproductive interests of gay persons; it might also help to diminish discrimination against gay persons by other individu-

¹¹⁵ See *supra* text accompanying notes 29-31.

als. Because the ethical risks of gay reproduction do not seem very serious, the important benefits that would result indicate that this is an area of research that merits attention and priority. As scientists refine the techniques of cloning with animals, they should develop those techniques to allow genetic reproduction by same-sex couples.

Yet anti-cloning legislation threatens to jeopardize this potential advance. Despite efforts to write legislation narrowly, lawmakers have drafted statutes and bills that prohibit, or discourage research into, the practice of same-sex reproduction. Legislators should rewrite the bills so that the prohibitions do not apply to the use of medical technology for genetic reproduction by same-sex couples.¹¹⁶ Better yet, legislatures should rely on administrative agencies, rather than specific legislative provisions, to regulate the use of cloning technology by physicians and other scientists.

¹¹⁶ And, laws that have already been passed need to be amended.

