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[Folder 3]: [Texas Law Review - "Liberty, Identity, & Human Cloning" by John A. Robertson] [2]

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RESTRICTION CODES**Presidential Records Act - [44 U.S.C. 2204(a)]**

- P1 National Security Classified Information [(a)(1) of the PRA]
- P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
- P3 Release would violate a Federal statute [(a)(3) of the PRA]
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Despite these difficulties, proponents of the view that birth can be prevented because the child can only be born harmed seem genuinely concerned about the welfare of children. They see the physical and psychological difficulties that they think cloned or genetically selected or engineered children will have, and they blame the parents for knowingly bringing this situation about. Indeed, they perceive the opposite position as seriously confused and insensitive to the plight of children. In their eyes, that view would always excuse as harmless *any* parental prebirth manipulation because the parents could always claim that *this* child would not even have been born but for the very act claimed to have harmed it.¹³³ The problem is that their position leads them to prevent the birth—to deny existence—to the very people they claim to respect. If the children whose welfare is at issue are to exist at all, it can only be in the condition which proponents of this argument say justifies preventing their birth.¹³⁴

The debate between these positions is likely to continue, for each side thinks that the other is causing harm to children, although they see it occurring in different ways.¹³⁵ In such a conflicted situation the best solution is to move the discussion to a different level or to ask a different question in the hope of identifying areas of agreement. One area of agreement might lie in defining the likely effects of giving particular DNA to individuals. If we can agree that on closer analysis the effects of cloning are much less serious or ominous than originally considered, then there may be no need to resolve the wrongful life issue, for there will be no serious claim that the resulting lives are wrongful, or indeed, that they are greatly diminished or inferior to non-cloned lives (which are not available to them). In making this inquiry, we should compare the effects of cloning to the effects that we tolerate in other reproductive and genetic selection decisions. Only if cloning presents substantial risks of untoward effects over current practices do we need to confront the differences in the approaches outlined here.

133. The case is strongest if the condition were correctable and the parents refused correction, claiming that they would not have brought the child into the world if correction were required. Even in that case it is difficult to say that the child is actually harmed, just as when diminishment occurs and the parents claim that they would not have otherwise gone forward with pregnancy unless they could diminish the child. See Robertson, *supra* note 91, at 438-39 (arguing that deciding to have a child with a disability, or even positively selecting diminished characteristics, does less harm to the child once it is born than denying it existence). Whether such action would be viewed as a valid expression of parental prerogatives is a separate issue.

134. Yet even proponents of the view that offspring welfare is best advanced by preventing their birth altogether do not claim that resulting children would actually experience net suffering, thus making their continued existence itself a wrong, just that their life is less whole or healthy than that of a child produced coitally.

135. Strictly speaking, prevention of the birth of cloned children in order to protect them does not harm them because they have never been in existence and thus cannot be harmed. At the same time, preventing their birth cannot benefit them because no one exists to be benefited.

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Another ground for agreement may lie in recalling why a decision about whether the child is harmed when it has no other way to be born matters. As a legal or policy matter, that issue is important because harm to the child by virtue of its own birth would constitute the substantial harm to others necessary to justify infringements of procreative liberty. But if procreative liberty is not involved, then lesser degrees of harm will suffice to support restrictions on liberty. If the effects on children of greatest concern occur in situations in which the initiator or clone source will not rear, then those uses might not fall within the zone of procreative liberty and therefore do not deserve special respect. If so, concerns about the child's welfare, even if not technically involving harm to the child, may legitimately be taken into account.

A third area of potential agreement lies in evolving understandings of proper parenting and reproductive behavior. Whatever one's views about wrongful life, people might find some consensus based on their assessment of whether cloning is necessary, in light of accessible alternatives, for a couple to have and rear healthy, biologically-related children in a committed family setting. A couple who, due to infertility or other needs, chooses to have and rear a cloned child would be manifesting the character that is ordinarily expected in parents committed to their child's well-being. We might properly question their character if they fail to show plausible reasons for choosing to clone or if they fail to show proper regard for the well-being of the resulting child. Here we could distinguish couples who are interested in having a healthy, genetically-related child whom they will rear, from couples who are interested in changing or altering genes to serve an agenda that seems divorced from the child's well-being once it exists. Ultimately, the questions here will concern norms and understandings of good parenting and reasonable parent-child relations.

The fact that the family and child will face a novel psychological situation does not necessarily mean that parents act wrongfully or violate prevailing conceptions of good parenting in choosing this route to form a family. As with procreative liberty, we construct and constitute the normative underpinnings of parental and child-rearing relations as we confront them in novel situations such as cloning.

B. Potential Harms from Human Cloning

I examine seven harms alleged to follow from human cloning and consider whether they are sufficient to justify prohibition of a couple's use of cloning techniques to form a family.¹³⁶

136. Again, lesser restrictions in certain cloning scenarios are discussed *infra* subpart V(B).

1. *Violation of Human Dignity and Identity.*—The initial reaction to human cloning, particularly in Europe, was that it was a violation of human dignity and identity. In the United States, Professor George Annas expressed one aspect of this view when he told the United States Senate that it was unacceptably inhuman to create a clone because a person's essential humanness requires being born from the combination of two separate sets of chromosomes, not one set, as would occur in cloning.¹³⁷ Yet whether an individual has one or two genetic parents is but one particular view of what constitutes our humanity, and has no greater, indeed, arguably a lesser, claim to define humanity than rationality, consciousness, language, or some other factor. In any event, persons created through nuclear transfer cloning do have two genetic parents—the same genetic parents as the clone source.

In Europe, the emphasis on human dignity, without further efforts to specify its content, has been effective at the national and regional political levels.¹³⁸ But appeals to human dignity, without further specification of the content of that dignity, so that it can be evaluated and compared to other conceptions and practices, will hardly do as a compelling justification for overriding procreative liberty.¹³⁹ As the following discussion shows, a more specific content can be given to "human dignity" by focusing on issues of safety, individuality, autonomy, objectification, and kinship, and asking whether those risks are sufficient to justify a ban on human cloning undertaken for family or reproductive purposes.

2. *Physical Safety.*—Issues about physical safety arise with any new medical procedure. The danger that physicians who have an interest in developing and using innovative procedures will mislead patients about the prospect of success is always present. In some cases patients may demand procedures when the risks and likelihood of success are unknown. A variety of formal and informal regulatory procedures, from institutional review board assessments of research to clinical practice standards, exist to assure the safety and efficacy of new procedures.

The risk of premature use leading to physically damaged children exists with human cloning as it does with other medical and reproductive procedures. The risk is greatest when the procedure is new and not yet

137. See *Hearings*, *supra* note 59, at 43 (statement of George J. Annas, Professor of Health Law, Boston University) (claiming that "cloning" would radically alter the very definition of what a human being is by producing the world's first human with a single genetic parent).

138. See *Council of Europe*, *supra* note 67, at 1419 (citing harm to human dignity as a reason for banning cloning).

139. For an incisive critique of the European reliance on dignity, see John Harris, "Goodbye Dolly?" *The Ethics of Human Cloning*, 23 J. MED. ETHICS 353, 354-55 (1997) (claiming that appeals to human dignity do not provide sufficient justification for outlawing human cloning).

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established. With cloning, the risks are: that eggs and DNA will be donated, embryos created, and then placed in the uterus without a realistic chance of success; that implantation will occur, but a high rate of miscarriage will result; and that resulting children will be deformed, will prematurely age, or will have a higher rate of cancer or other disease.¹⁴⁰ On the other hand, cloning will assure that chromosomal aneuploidies or other defects, which are always a risk with coital reproduction, will not occur, for it is unlikely that DNA with such anomalies will have been cloned.¹⁴¹

Considerable animal and laboratory research will be necessary to establish human cloning as a safe and effective procedure. The NBAC cited the need for more research establishing the physical safety of cloning as a reason for enacting a federal criminal ban, even though there was little risk that anyone would begin cloning before safety and efficacy had first been established in animals.¹⁴² Although reasonable people might differ in their willingness to accept risks to have a biologically-related family, few couples and doctors would be willing to use cloning techniques to form families if there were a significant risk of physical damage to offspring, or even high rates of miscarriage. With Food and Drug Administration or other regulatory control to assure safety of the technique, concerns about physical safety will rarely provide a sound basis for prohibiting cloning by couples seeking to have biologically-related children for rearing.¹⁴³

3. *Cloning and Threats to Individuality.*—Much opposition to human cloning has been based on concerns about a diminished sense of uniqueness and individuality in persons who are created with the DNA of other persons.¹⁴⁴ Dr. Ian Wilmut, in supporting his claim that human cloning

140. See NBAC CLONING REPORT, *supra* note 3, at 65-66.

141. See Lee M. Silver, REMAKING EDEN: CLONING AND BEYOND IN A BRAVE NEW WORLD 103-04 (1997).

142. See NBAC CLONING REPORT, *supra* note 3, at 65-66 (claiming that the risk of genetic abnormalities in a cloned child warrants a ban on cloning until more extensive research is undertaken regarding its risks).

143. See, e.g., Sheryl Gay Stolberg, *FDA Stand on Cloning Raises Even More Questions*, N.Y. TIMES, Jan. 21, 1998, at A14 (citing leaders in science and industry who contend that the prohibition of cloning is unnecessary if it is adequately regulated). Would a couple's procreative liberty include the right to attempt somatic cell nuclear transfer before animal and laboratory research provides evidence of safety and efficacy? Although resulting children would not be harmed, because they have no other way to be born, it is less plausible to think that a couple seeking to clone is validly involved in the reproductive endeavor of having biologically-related children to rear when the procedure has not been shown to be safe and effective.

144. See NBAC CLONING REPORT, *supra* note 3, at 66-68 (presenting the arguments of ethicists who believe cloning poses a threat to human individuality). The concern about individuality could arise from embryo splitting, if transfer of an embryo occurs after the birth of the first twin, or by nuclear transfer from an existing person.

would be repugnant, pointed to a denial of individuality,¹⁴⁵ as did President Clinton in calling for Congress to ban human cloning for five years.¹⁴⁶ Their underlying theory is that a unique genome is essential to individuality and that if one has the same DNA as another, she will inevitably be viewed as a copy of the person from whom the DNA came. This will produce such a reduced sense of individuality that it is in the child's best interests not to be born at all.

Oddly, proponents of this view do not view identical twins as lacking individuality even though they have the same genome (including mitochondrial DNA). In fact, some twins have a sense of unity or nonseparateness that does not resolve itself into separate identities until later in childhood.¹⁴⁷ Usually, however, we think of identical twins as having a special closeness and intimacy that other siblings do not share. Rather than suffer from a loss of individuality, identical twins created by cloning, even if born years apart, may have a special closeness that outweighs the risk of being confused with, or judged by, or expected to conform to the earlier twin's phenotype.¹⁴⁸

Couples who choose the DNA of another embryo or person for their child will face issues of their child's identity and individuality. If they use cloning as a legitimate way to solve a problem of family formation, they will be interested in having their child profit from the chosen genes while also experiencing its own individuality. One can choose a particular genome for one's child without regarding the child as a mere copy or replica of the DNA source. One can grant genes importance without granting them total importance, for nurture and environment also matter significantly in creating personal identity.¹⁴⁹

145. In explaining his opposition, Dr. Wilmut said: "I think that each child should be treated as an individual; and if you have chosen to make a child, who is a copy of someone who is already here, you can't possibly treat that child as an individual." When then asked about producing two Einsteins, he denied that they would be copies, thereby contradicting his earlier statement about individuality: "And so it is a fact . . . a confident prediction, that if we were to have genetically identical people, born at different times, they would work really to be quite different individuals." *CNN Larry King Live* (CNN television broadcast, June 24, 1997) (transcript at 5-6, on file with the *Texas Law Review*).

146. See President's Remarks, *supra* note 5, at 845.

147. This sense of unity or nonseparateness, despite physically separate bodies, is well-stated in Arundhati Roy's *The God of Small Things*, where she describes the early relationship between the ditzygotic twins who are main characters in her novel:

In those early amorphous years when memory had only just begun, when life was full of Beginnings and no Ends, and Everything was Forever, Esthappen and Rahel thought of themselves together as Me, and separately, individually, as We or Us. As though they were a rare breed of Siamese twins, physically separate, but with joint identities.

ARUNDHATI ROY, *THE GOD OF SMALL THINGS* 3 (1997).

148. See Nancy L. Segal, *Behavioral Aspects of Intergenerational Human Cloning: What Twins Tell Us*, *JURIMETRICS*, Fall 1997, at 57, 65-67.

149. We are back to the paradoxical or ambivalent nature of genes, which was noted at the beginning of this Article. See *supra* notes 8-9 and accompanying text (noting that genes do not entirely determine one's personality but that environment and experience also play a role).

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Cloning: What Twins

as noted at the beginning, genes do not entirely

The DNA source and the resulting child may have the same nuclear DNA, but they are clearly separate persons who are born at different times and who occupy separate bodies. Their uterine, early childhood, and overall rearing environment and experiences will be different, and they ordinarily will not have the same mitochondrial DNA. While sharing many features, identical twins born at the same time are clearly separate persons. Identical twins born at different times are likely to be even more different. Thus using the DNA of another to make a child will not result in a mere copy or replica of the DNA source, much less make its life so full of suffering or reduced individuality that its life is not worth living.¹⁵⁰

A more sophisticated criticism based on individuality asserts not that the clone and the clone source are not physically separate or legally different persons, but rather that they will not be viewed or will not view themselves as truly separate. Because they have X's DNA, the danger is that their rearing parents, they themselves, and perhaps others will treat or perceive them as being X.

But several conditions would have to coalesce to create this effect. First, the rearing parents would have to know the clone source's phenotype and believe that its genotype will control the child's personal identity, despite the temporal and environmental differences that will occur in the child's rearing. Second, the concern about individuality would be magnified if other people also knew that the child is the clone of another person. But most people will have no idea or information about the origin of a person's DNA. Even if they did, they may still regard the later born child as an individual in his own right. Finally, and most importantly, the child would have to be informed of its status as a clone and believe that genes are all or largely determinative of who an individual is, while also ignoring the importance of being born and reared at a later time and in a different environment.

It is highly unlikely that all these conditions would manifest themselves in the most likely cloning scenarios. Take the case where parents, either through embryo splitting, nuclear transfer from embryos, or cloning of an existing child, produce a child with the same DNA as an existing or previously existing child. Because parents of identical twins view them as separate, and indeed often go to some trouble to treat them as different, no reason exists why they would not do so with later born identical twins, even though they have an earlier child with whom the later born twin may

150. As ethicist and NBAC member Thomas M. Murray put it, a clone of Mel Gibson "may look a great deal like Mel Gibson. . . . [but] Mel's clone could be very different from the original." *Biotechnology and the Ethics of Cloning: How Far Should We Go?: Hearing Before the Subcomm. on Technology of the House Comm. on Science*, 105th Cong. 25 (1997) (statement of Thomas M. Murray, Chairman, Genetics Testing Subcomm., NBAC).

be compared. If they want the best possible life for their child, one would expect them to do everything possible to give the child its own sense of individuality and avoid viewing her merely as a copy of the existing child.¹⁵¹

Consider also situations in which cloning is sought as a substitute for embryo or gamete donation. In the case of embryo donation, the DNA of a third party is chosen because that DNA has some special characteristic or meaning. The couple hopes that the clone will have at least some of the characteristics of the clone source, for example, her looks, intelligence, health, or merely her family connection. But it does not follow that they will view the child as identical to that source or that the child will be loved only to the extent that she emulates or resembles that source. They too will know that genes, while important, are not all-determinative of identity or personality.¹⁵² They will also know that rearing the child in a different setting at a later time is also likely to make her different from the DNA source. Although there will be some physical similarity, it is hard to think that parents interested in having a healthy child will not rear her as an individual in her own right.

Consider also cases in which a couple agrees to use the DNA of one of them in lieu of gamete donation from a stranger to produce the child whom they will gestate and rear. The rearing parent and child may share many physical characteristics, but it will be very difficult to view an infant and child as identical to its much older genetic twin who is also functioning as its rearing father. Even the rearing father will be hard-pressed to view the child as identical to himself, even though he might view it as part of or derived from himself, or have a very special parental relationship because of the genetic similarity.

In sum, the claim that human cloning necessarily violates a person's individuality because one does not have a unique genome is not convincing given the widespread existence of twins and the intent of a couple to gestate and rear the resulting child. Similarity in genotype does not mean that there will be similarity in phenotype, particularly when the rearing occurs in a different environment at a later time. If cloning occurs as part of a couple's efforts to have and rear offspring, we can expect that the rearing parents will attempt to inculcate difference rather than similarity and make strenuous efforts to ensure the child's sense that she is a special individual. To be sure, issues about the child's individuality are important.

151. This is likely to be true even if they have used the DNA of a previous child as a way to maintain or continue it after its death. It is also likely to be true if the motivation for the cloning is to obtain tissue for transplant. In that case the second child's difference is precisely the reason it was brought into the world; it does not have the illness its tissue is used to treat.

152. Genes may allow one to say that a cadaver or physical body is person X or Y, but they will not control all the experiences that go into making up one's personal identity.

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matters to be addressed in the consent and counseling process of a couple contemplating the use of cloning to form a family.¹⁵³ They do not, however, constitute the tangible harm needed to justify infringements on procreative rights to use cloning for the purpose of family formation.

4. *Cloning as a Violation of Autonomy.*—Many fears about human cloning involve the freedom or autonomy of the resulting child. A major limitation of freedom would occur if the resulting clone were the property, subject, or slave of the clone source or initiator of the cloning. But the decision to use another's DNA in bringing a child into the world gives neither the clone source nor the initiator of the cloning absolute or despotic power over that child. Any child born as a result of cloning would legally be a person with all the moral and legal rights of persons, and would no more be the property or subject of the person who commissions or carries out the cloning than any other child. Murder, assault, child abuse, and other laws protective of children would apply to all children, whether they are the product of cloning or coital conception. The power to determine whether another person will be born, and even what genes she carries, does not give one any additional power over that person once she does exist.¹⁵⁴

A second sense in which cloning might be thought to violate the resulting child's autonomy rests on a crude form of genetic determinism. It assumes that in picking one set of genes for the person, one is depriving her of the autonomy that she would have had if she possessed a different set of genes. This view assumes that genes control a person's actions and that in selecting genes, one is controlling or determining who or what the person is. It also overlooks the key fact that at a certain point, if given different genes, the resulting child would be a different person.¹⁵⁵

The position as stated claims too much. If it is true that the clone source's genes determine who the clone is and leave him no freedom to be otherwise, then no person has autonomy because we are all controlled by our genes. Of course, a prior phenotypic expression of one's genome is not available to constrain us in advance as it may be in the case of cloning, but the phenotype of the parents is close enough to impose similar

153. See *infra* subsection V(B)(2)(c) (arguing that couples considering cloning should be fully informed about the medical and psychological challenges inherent in the cloning process).

154. See Robertson, *supra* note 91, at 479 n.239 (quoting James G. Dwyer, *Parents' Religion and Children's Welfare: Debunking the Doctrine of Parents' Rights*, 82 CAL. L. REV. 1371, 1446 (1994), for the proposition that "[n]o one should possess a right to control the life of another person" (emphasis in original)).

155. See Noam J. Zohar, *Prospects for "Genetic Therapy"—Can A Person Benefit From Being Altered?*, 5 BIOETHICS 275, 285 (1991) (arguing that life histories alone do not account for individuality by stating that "[s]trictly speaking, any change in genotype constitutes an alteration of the individual").

constraints. Yet none of us think that we are totally determined by our parental genes, and we often engage in actions, particularly in adolescence, to distinguish ourselves from them. There is no good reason to think that a child given the DNA of a sibling, a parent, or a third party would not also engage in that separation or would lack the ability to do so, particularly if the parents were interested in having the child develop its own sense of identity.¹⁵⁶

A third sense in which cloning could affect autonomy is through parental expectations based on the chosen genome. The fear is that because the genes chosen have special meaning for the parents, the couple will demand or expect the child to emulate or copy the life of the gene source. They will guide or mold the child to fit those expectations, thus depriving it of the ability to make its own choices. Given the power of parental influence, the child might come to view herself as having no freedom to act other than as she thinks her DNA source would have acted. Yet this fear also founders on the more likely possibility that parents, while hoping that their child will follow certain paths and even guiding or encouraging them to do so, will in the end have to accept the cloned child as a separate individual with his or her own preferences and path in life.

The concern about excessive parental expectations shares features with a fourth sense in which the resulting child may lack autonomy—denial of an “open future” because of phenotypic knowledge of the clone source. The philosopher Hans Jonas has articulated this point:

The simple and unprecedented fact is that the clone knows (or believes to know) altogether too much about himself and is known (or is believed to be known) altogether too well to others. Both facts are paralyzing for the spontaneity of becoming himself It is the known donor archetype that will dictate all expectations, predictions, hopes and fears, goal settings, comparisons, standards of success and failure, of fulfillment and disappointment, for all “in the know”—clone and witnesses alike; and this putative knowledge must stifle in the *pre-charted subject* all immediacy of the groping quest and eventual finding “himself” with which a toiling life surprises itself for good and for ill.¹⁵⁷

Jonas notes further that this effect is independent of the actual effects of genotype on a person's life. According to Jonas, genotype “is made his fate by the very assumptions in cloning him, which by their imposition on all concerned become a force themselves.”¹⁵⁸ Jonas concludes that the

clone is “antediluvian protection of its freedom deliberately even once.”¹⁵⁹

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159. *Id.* at 162 (expressing a different way. See J. CHILDREN'S RIGHTS, F. eds., 1980), reprinted in a subclass of rights regarding denial of an open future, and not a choice. See *id.* at 76-77. For example, he calls the temporary society a decision would be genital mutilation. Later decisions about sex and Prejudice of Female (evaluating the legal mutilation); Colloquy, E. W. RES. L. REV. 263 (1977) of female genital mutilation. 160. Except that the phrase “ 161. The phrase “ between parent and child in rearing children that exemplified by the image stage mother, who force would simply like to do

156. See HEYD, *supra* note 127, at 160-62, 168-77 (characterizing the formation of identity as a dynamic process crucially tied to both biological and social factors).

157. JONAS, *supra* note 77, at 161 (emphasis added).

158. *Id.*

clone is "antecedently robbed of the *freedom* which only under the protection of ignorance can thrive; and to rob a human-to-be of that freedom deliberately is an inexcusable crime that must not be committed even once."¹⁵⁹

Jonas's eloquently stated concerns do not, of course, apply to every case involving human cloning. (Indeed, they were addressed to the situation of improving the quality or performance of the human race generally, and not to the procreative uses of cloning described above). They would not, for example, apply to cloning embryos or children who have not lived very long, for little will be known about them.¹⁶⁰ Nor would they apply to a third party DNA source about whom little is known. Finally, this effect requires that the resulting child be informed of the origin of its DNA. Denial of an open future would not be a great danger if the child does not learn that he is cloned, does not know details of the clone source's life, or does not think that he is bound to copy or emulate that model.

Jonas's concerns, however, are theoretically applicable in the many cases in which parents are likely to have some information about the clone source's phenotype and have chosen its DNA for the value or meaning that phenotype carries for them. The danger exists, but it exists in noncloning situations as well.¹⁶¹ Based on what we know now about parental wishes in having and rearing offspring, the separate moral and legal status that children have, and how cloning is most likely to be used, parents will have a great interest in the well-being and autonomy of their child. Rearing a

159. *Id.* at 162 (emphasis in original). Note that Joel Feinberg uses the term "open future" in a different way. See Joel Feinberg, *The Child's Right To an Open Future*, in WHOSE CHILD? CHILDREN'S RIGHTS, PARENTAL AUTHORITY, AND STATE POWER (William Aiken & Hugh LaFollette eds., 1980), reprinted in FREEDOM AND FULFILLMENT: PHILOSOPHICAL ESSAYS 76 (1992) (examining a subclass of rights generally characteristic of children, termed "rights-in-trust"). To Feinberg, the denial of an open future refers to the withholding of the capacity or tools necessary to make autonomous choices, and not to the imposition of expectations or models that act to dictate or restrain future choice. See *id.* at 76-77. Using the Amish children in *Wisconsin v. Yoder*, 406 U.S. 205 (1972) as an example, he calls the failure to give a child the rudiments of knowledge needed to function in contemporary society a denial of the child's right to an open future. See *id.* at 85. Another example would be genital mutilation or clitorrectomy of girls at puberty, which denies them the ability to make later decisions about sexual pleasure. See generally Catherine L. Annas, *Irreversible Error: The Power and Prejudice of Female Genital Mutilation*, 12 J. CONTEMP. HEALTH L. & POL'Y 325 (1996) (evaluating the legal theories and policy recommendations regarding the act of female genital mutilation); Colloquy, *Bridging Society, Culture, and Law: The Issue of Female Circumcision*, 47 CASE W. RES. L. REV. 263 (1997) (examining the tension between universal rights and the cultural practice of female genital mutilation).

160. Except that they have died or were never born, which could, in some cases, be significant.

161. The phrase "chip off the old block" refers to both physical and nonbiologic similarities between parent and child. Our traditions of parental and family autonomy give parents wide discretion in rearing children that allows them to mold their children to their own ideas. Abuses can occur, as exemplified by the image of the Little League father, who expects his son to be a baseball star, or the stage mother, who forces her child into an acting or theatrical career, when the children in both cases would simply like to do something else.

child with the DNA of another will present special challenges, but there is no basis for thinking that well-meaning parents cannot master them and allow the child the necessary room and freedom to become herself, regardless of what is known about the clone source.¹⁶²

No doubt parents interested in their child's well-being will strive to avoid constricting the child's future with overly rigid expectations. Indeed, no couple should embark upon cloning without considering the dangers of overly identifying the child with the clone source. No reputable program should provide cloning services without counseling couples about those dangers and screening out those couples who do not appear able to deal with the psychological challenges presented, as many assisted reproduction programs now do with couples seeking gamete donation or surrogacy. A major rearing task of parents will be to support the child's development toward being her own person, independent of the clone source's characteristics.

One may thus recognize the challenge of assuring the child an open future without concluding that all cloning will inevitably lead to perceptions of the child as a "clone" or copy of the clone source without the freedom to develop her own identity. In such circumstances, the chance that cloning will so harm the child's autonomy or sense of identity that it is preferable for her not to have been born at all is highly unlikely. Threats to autonomy thus do not constitute a compelling ground for denying couples the right to use cloning to form families.

5. *Objectification and Instrumentalization.*—A commonly asserted danger of human cloning is that it will lead to children being treated as means to parental ends and not as ends in themselves, thus violating the Kantian maxim to treat people as ends and not merely as means.¹⁶³ Such a risk would be great if, as in *Brave New World*,¹⁶⁴ cloning were used to produce a worker class or many copies of a particular genome to serve societal or individual utilitarian goals without regard for the welfare of the resulting individual.¹⁶⁵ But such scenarios do not recognize that cloning

162. Of course, not every use of cloning will reflect the model of responsibility suggested in the text. But the possibility of abuse in a few cases is not a compelling reason to ban cloning in all cases, for fundamental procreative liberties are involved. More limited regulation can guard against the abuses. See *infra* subpart V (B) (addressing the policy issues implicated if cloning is determined to be safe and effective for humans).

163. See NBAC CLONING REPORT, *supra* note 3, at 72-74 (discussing the concern that cloning may amount to objectifying cloned children, rather than treating them as full persons).

164. See HUXLEY, *supra* note 71.

165. Although it would not follow that such individuals would be harmed, given that they have no alternative way to be born, the choice to do so would not easily be viewed as a legitimate exercise of procreative liberty or good parenting. See *supra* notes 134-35.

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requires gestation and rearing of a child, much less that cloning may be part of a married couple's efforts to have and rear children.¹⁶⁶

The danger of objectification and instrumentalization might still exist, although to a lesser extent, with married couples who gestate and rear the children whose DNA they have chosen. After all, they are choosing to give the child a particular genome for a reason. Even if they do not view genes as all-determinative, they are expecting something because of the genome chosen for the child. The danger is that they will view the child primarily as a means to fulfill the goals that motivate the choice of that genome, thus rendering the child's life full of expectations and consequent suffering that make it preferable that it not be born at all.

In evaluating this claim, however, we cannot ignore the reasons that ordinarily motivate persons to have children. These reasons may range from continuing one's genetic line to connecting with nature after death, making provisions for a caretaker in one's old age, saving the marriage or relationship, demonstrating virility, obeying God's commandments, or simply experiencing the joy and pleasure of children. Many of these motives or purposes may continue to exist once the child is born, and indeed, may exist simultaneously with love for the child herself. Ordinarily, the existence of ulterior or mixed motives for wanting children does not cast doubt on the ethical acceptability of reproduction, for they do not prevent parents from loving children for themselves or respecting them as persons in their own right.

Similarly, parents may choose to have a child with a particular genome because they want the child to be tied to a certain lineage, to be healthy, to have certain other genetic attributes, to be like another child or person, to avoid the use of unknown tissue or embryo donors, or to be a source of organs or tissue. While some parents could end up viewing the child as a mere means to other agendas and ignore the child's own needs, it is more realistic to think that they will love and respect resulting children for themselves, even as the children serve these other goals, for they will have embarked on intrusive medical procedures, gestation, and childrearing in order to have the child.

As we have seen in other contexts, the child's genes could matter enormously for the parents without also causing the parents to deny or negate the child's own uniqueness, freedom, or worth as a person. This is clear when parents choose to have a later-born twin of an existing child or use the DNA of a third party or one of the spouses in lieu of gamete or

166. Even if the clones in these situations would not themselves be harmed because they would have no other way to exist, it is clear that producing them would not be an exercise of anyone's procreative freedom, and thus cloning for such purposes might rationally be banned to symbolize respect for persons or other ideals.

embryo donation. It is also true when the motivating reason for cloning is to produce organs or tissue for transplant to an existing child. In the latter case, the child's own good and status as an end in herself can coexist with the parents' desire to help an existing child.

An instructive parallel to the use of cloning to obtain tissue or organs for transplant for an existing child arose in the Ayala case.¹⁶⁷ The Ayala's eighteen-year-old daughter Anissa suffered from leukemia.¹⁶⁸ Although in remission, there was a chance that the disease would recur and that eventually a bone marrow transplant would be necessary.¹⁶⁹ Because neither her siblings nor her parents were a suitable tissue match, her parents decided to have another child so that it might serve as a donor if necessary.¹⁷⁰ After Mr. Ayala underwent a reversal of a previous vasectomy, the couple conceived coitally and gave birth to a child who turned out to be an excellent tissue match for Anissa when the need for a bone marrow donation arose.¹⁷¹ Although a few ethicists raised concerns about conceiving a child to be a donor for another, it was clear that the Ayalas loved the new child as much as their other children and would continue to love her, whether or not she was able to save their older daughter's life.¹⁷²

If the Ayalas acted ethically because they were prepared to love the child whose conception was motivated by another child's potential need for bone marrow, then using an existing child's DNA in order to have another child as a source of organs or tissue should also be acceptable. Indeed, the ability to replicate existing DNA eliminates the risk that the resulting child will not be a proper match, thus lessening the chance that the child will be aborted in utero or rejected after birth because it is not an ideal donor. If the need for donation arises, the rights of the child with the chosen DNA still have to be respected. Its organs or tissue cannot be used without its consent, or if incompetent to consent, without a showing that the benefits it receives from the donation outweigh the harms.¹⁷³

167. For further discussion of this case, see ROBERTSON, *supra* note 86, at 214-17.

168. *Id.* at 214.

169. *Id.*

170. *Id.*

171. *Id.*

172. For accounts of other cases, see Warren Kearney & Arthur L. Caplan, *Parity for the Donation of Bone Marrow: Ethical and Policy Considerations*, in 1 EMERGING ISSUES IN BIOMEDICAL POLICY 262, 263 (Robert H. Blank & Andrea L. Bonnicksen eds., 1992) (reporting that at least forty known cases of couples conceiving a child in the hope of creating a marrow donor preceded the much publicized Ayala conception).

173. See *Strunk v. Strunk*, 445 S.W.2d 145, 148-49 (Ky. 1969) (holding that a retarded person could serve as a kidney donor for his brother when the donation would benefit the incompetent donor). The required benefit need not be a physical one. Allowing the transplant may be appropriate when proof establishes that the psychological benefits that will flow to the incompetent donor as a result of the operation would outweigh the possible physical harm. For example, the court in *Strunk* authorized

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The example of cloning to obtain tissue or organs for an existing child shows that the threat of objectification or instrumentalization is not significantly greater with cloning than it is with coital reproduction. In either case, usually only couples seriously interested in rearing the resulting child would have a child for an ulterior purpose in addition to the interests of that child herself. In either case the genes matter, but the child matters as well. The fact that the child was also desired to serve as a source of tissue or organ does not negate the love that parents will have for that child.

The question of objectification is somewhat different if cell biology advances to the point that tissue or organs for transplant can be obtained from embryonic stem cells¹⁷⁴ or early abortions. In that case cloning another to obtain tissue or organs for transplant need only produce cloned embryos or fetuses, and not live-born children, thus avoiding the problem of instrumentalizing a child created in part to serve as an organ source. In addition, a wider range of transplants becomes possible because obtaining organs from a living donor is limited to donations that do not unduly "harm" it (e.g., blood, bone marrow, and possibly kidney).

Creating cloned embryos and fetuses to obtain tissue, while avoiding the problem of harm to resulting children, must confront the equally divisive issue of whether it is ethically acceptable to create and destroy embryos, or to conceive and abort fetuses, in order to obtain tissue and organs for transplant.¹⁷⁵ Previous debates over the use of fetal tissue transplants to treat Parkinson's disease and the creation of embryos solely for research purposes demonstrate the ethical issues that thereby arise. An important distinction in those debates was whether a person believed that embryos or fetuses had rights in themselves as persons or subjects with independent moral status, or whether persons found such practices offensive even if they did not believe that embryos or fetuses had

the transplant largely because of the overwhelming psychiatric evidence that the death of the donee in the absence of the transplant would have an extremely traumatic effect on the incompetent donor. See *id.* at 146-47; see also Charles H. Baron et al., *Live Organ and Tissue Transplants from Minor Donors in Massachusetts*, 55 B.U. L. REV. 159, 170-71, 178-81 (1975) (discussing Massachusetts's use of the "best interests test," which attempts to balance the psychological benefit to the incompetent donor against the physical harm he suffers in donating an organ or tissue to determine whether the operation is in his best interest). Thus, in our scenario, the resulting child cannot automatically be used as a tissue donor for some other person when it will not be benefitted, as it may be by tissue donation to an ill sibling or family member.

174. See *supra* notes 53-54 (contending that for transplantation purposes the use of embryonic stem cells ultimately will become more acceptable than the use of fetal tissue or organs).

175. A variation on this issue would be the creation of headless or brainless embryos, fetuses, or bodies to serve as tissue or organ sources. Without a brain or head, no rights-bearing entity or person would exist, making clear that the harm done by harvesting organs from such creatures would be a symbolic one. Another variation would be the use of cow eggs to create the cloned embryos or fetuses from which tissue or organs are ultimately derived. See Goldberg & Kolata, *supra* note 29.

independent moral status. Persons who hold the latter view are best viewed as opposing those practices for symbolic, as opposed to rights-based reasons, because they acknowledge that embryos and fetuses do not independently have rights not to be discarded or aborted.¹⁷⁶ If so, the issue will be resolved by a policy judgment about whether the transplant benefits of such sources outweigh the symbolic harm to respect for life that such practices would entail. In either case, however, the debate is not directly relevant to the ethical issues that arise from creating children by nuclear transfer cloning, but it concerns the different problem of creating and then destroying prenatal life in order to serve the health interests of others.

In sum, there is no reasonable basis for thinking that choosing particular DNA for a child is more likely to instrumentalize or objectify that child than choosing to have children born for any of the myriad reasons that drive persons in coital reproduction. Surely the risk that children with chosen DNA will have a life full of suffering because of the reasons motivating the choice of DNA does not appear great. That risk is not sufficient to prevent couples from cloning another when that choice is a reasonable way for the couple to achieve their goals of having and rearing biologically-related offspring.¹⁷⁷

6. *Kinship, Lineage, and Family Relations.*—A major source of concern with human cloning is the confusion that it could create in family lineage and kinship.¹⁷⁸ As with other objections to cloning, the argument takes the following form: (1) some forms of cloning could give rise to problems in identifying the lineage and kinship of resulting children; (2) these problems make the child's life much less happy than it would otherwise be; (3) therefore, all cloning should be prohibited.¹⁷⁹

The following discussion will focus on the kinship effects of the transfer of nuclear material and not on the effects arising from an egg

176. See ROBERTSON, *supra* note 86, at 198-202, 207-14 (discussing the controversies surrounding embryo research and the use of fetal tissue that comes from abortions for transplants).

177. Enabling an existing child to live through tissue transplanted from a later born twin promotes the ability to continue to rear that child. Note also that the concerns about objectification would not suffice to ban the production of embryos or fetuses from whom tissue is harvested before they are born. Although the right to reproduce may not be directly applicable because no child is ever born, "farming the uterus" does involve use of the couple's reproductive capacity and should be protected in its own right. See ROBERTSON, *supra* note 86, at 197, 207-14, 217-19 (discussing the ethical issues involved in using aborted fetal tissue for a transplant); see also ROBERTSON, *infra* note 235 (positing that a restriction on designated donation of fetal tissue would violate fundamental procreative rights).

178. See NBAC CLONING REPORT, *supra* note 3, at 70 (describing several examples in which cloning potentially could threaten family stability).

179. The argument against cloning based on confusion of kinship has taken this extreme form, even though regulations that do not require prohibition of all forms or instances of cloning are also possible. See *infra* subpart V(B).

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donor's contribution to the enterprise, even though human cloning will raise family and kinship issues for the egg source as well. Because some of a person's DNA is in the mitochondria found in the egg's cytoplasm, a woman providing the egg into which the source DNA is transferred will also be contributing bits of DNA to the resulting child. This fact creates the novel possibility of separating the female *genetic* contribution in reproduction into two parts—nuclear DNA and mitochondrial DNA in the egg into which the nucleus of the source cell is placed. In sexual reproduction the same female provides both sources of female DNA. Nuclear transfer cloning permits DNA derived from the female to be provided by different women, or by the same woman at different points in time. Cloning thus further partializes biologic motherhood by presenting the novel possibility of a third biologic mother, in addition to the separate gestational and genetic mothers that IVF technology now makes possible.¹⁸⁰

An important issue in coming to terms with human cloning will be how to regard the contribution of an egg donor who neither gestates nor provides nuclear DNA. Is her effort in providing eggs sufficient to give her a kinship role? If effort alone does not qualify her as kin, does the contribution of cytoplasm and mitochondrial DNA give her a biologic or genetic status that deserves treatment like other biological contributors to a child's birth? We do not know the answer because the question has never previously arisen. It would certainly be plausible to continue the cultural emphasis on nuclear DNA and ignore the role that the donor of enucleated eggs provides, viewing her as more kin than nanny or wetnurse but less than the person who provides the nuclear DNA.¹⁸¹ The question of what meanings to construct for this relationship is another example of how human cloning and other forms of genetic selection require us to define reproductive meanings in the very process of using the technologies.

a. Cloning one's child.—The kinship problem is not salient in all cloning situations. A couple's use of their embryo's or an existing child's DNA to have another child raises no issue of kinship between rearing parents and child, for the child is clearly their genetic child. If the wife provides the egg into which the child's DNA is inserted, she will be the provider of both kinds of DNA, while also serving as gestational

180. In coital reproduction, the genetic and gestational mother is necessarily the same. In egg donation, the genetic and gestational mothers are different, but one woman provides all the DNA. In nuclear transfer cloning, there is the possibility of two different women providing DNA, with the source of the nuclear DNA providing more, and either of the DNA sources or another gestating. If we add rearing, a fourth maternal role is created.

181. The person providing nuclear DNA could be male or female. In either case, the genetic mother of the nuclear DNA donor would be the genetic mother of the resulting clone.

mother.¹⁸² If she does not provide the egg, she is nevertheless the major source of DNA (albeit at an earlier point in time) and will gestate. In that situation, role or lineage confusion from the existence of an egg source is unlikely.

The only relational oddity is that the child will have an older sibling with an identical nuclear genome. But this does not confuse kinship as such, although it does raise the novel question of the relation between an earlier and later born identical twin because the earlier born twin is the DNA source for the later. Unlike most twins, they will not share the same uterine or rearing environment. Indeed, given the differences in time and environment, they may consider themselves more as non-twin siblings than twins. The problems of individuality, autonomy, and objectification that cloning an existing child presents are not usefully understood as problems of kinship, for the kinship relationship between the two twins individually and between each of them and their rearing parents is not in question.

b. Cloning an unrelated third party.—The lineage problem is more relevant when another person's DNA is used in lieu of an anonymous embryo donation. In this case the couple will gestate and rear a child with whom they have no genetic tie.¹⁸³ The party who consents to be cloned will have a later born identical twin with whom it has no rearing or social relation. The genetic parents of the clone source will also have no assigned rearing or social relation with the clone of their genetic offspring. While this situation is a deviation from the kinship relations that exist in coitally-created families, it does preserve a rearing relation with the woman who gestated and with her marriage or life partner.¹⁸⁴

The resulting kinship relations are similar but not identical to the splits among genetic, gestational, and social parentage that occur in certain kinds of assisted reproduction. Some forms of assistance (sperm and egg donation and gestational surrogacy) involve a genetic connection with at least one of the rearing partners—a connection that is missing here. With cloning, however, as with embryo donation, there is still a gestational relation. Embryo donation, to the extent it is now practiced, is socially and ethically accepted because of the gestational relationship and the

182. The genetic mother's role is nevertheless novel in that her contribution of chromosomes that are then expressed in her child occurs prior to her contribution of cytoplasm and mitochondria. It is unclear whether this distinction is important, although it does require that the egg source have eggs retrieved from her.

183. In this situation it is highly unlikely that the wife would provide the egg into which the transferred nucleus is placed, for a female ovarian or genetic factor is likely to have led to the need for an embryo donation in the first place.

184. I am ignoring for the moment the egg source who provides cytoplasm and mitochondria. That role is discussed *infra* in text accompanying note 186.

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recipient's commitment to rear. A similar situation exists with the cloning of a third party in lieu of embryo donation. In both cases the gestating mother and her partner will rear a child with whom they have no genetic connection.¹⁸⁵

Because it is unlikely in this scenario that the woman gestating and rearing the cloned embryo will provide the eggs that receive the nuclear transfer, a donor egg cycle will have to be initiated in another woman to provide the needed eggs.¹⁸⁶ If donor eggs are used, the lineage becomes slightly more complicated because another woman will be providing the egg that receives the transfer of nuclear DNA.¹⁸⁷ The resulting child will then have two different genetic mothers, as well as a gestating mother (who also will rear). A genetic purist might find this significant, but it is reasonable to expect that for the foreseeable future most people will view nuclear DNA rather than mitochondrial DNA as the primary carrier of kinship relations. In either case, however, as in embryo donation, the gestational and rearing relationship will be more significant.

An important kinship aspect of using the DNA of an individual unrelated to the couple is that the genetic parents of the clone source will be the resulting child's genetic parents. Without having done anything, they will have new genetic progeny—a later born identical twin of their offspring. Just as an embryo donor's parents will have no say in the genetic replication of their child, they may have no say over whether their child chooses to be cloned. This is likely to be true even though embryo donation results in genetic grandchildren, while cloning of their child leads to genetic reproduction.¹⁸⁸ If they are aware of the cloning, they probably will have no rearing role with the resulting child. Nor will the child in many cases have any knowledge of or relation with either his elder identical twin or his genetic parents, just as the children of gamete or embryo donation seldom have social relations with genetic kin.¹⁸⁹

The concerns about kinship and lineage raised by cloning third-party DNA thus affect the parent-and-child rearing relation less than they affect

185. There will be, however, a question of lineage or kinship between the child and the clone source and the clone source's parents. But that question is no more charged, and in some cases may be less charged, than the relation of the child of donor gametes or embryos to its genetic parent(s).

186. The ability to mature oocytes in vitro would obviate the need for another woman to undergo an IVF cycle to provide the eggs needed to receive the transferred nucleus.

187. There might be situations in which a woman's egg cannot be used, not because of a lack of viability, but because she is a carrier of genetic disease. She might be able to provide a viable egg for insertion of the DNA of an unrelated third party, thus eliminating the need for donor eggs to accomplish the cloning.

188. The question of the clone source's parents' right to object to cloning of their child is discussed *infra* notes 275-77.

189. Many variations are possible here, with varying degrees of kin involvement. Most involvement would occur if the gamete or clone source were an openly acknowledged family member.

the relation between the child and the DNA source, and the child and the DNA source's genetic parents. Its difference from embryo donation is again not substantial. Embryo donation also assumes that genetic parents will have no relation with genetic offspring. In that case, however, the genetic parents (the donors of the embryos) have consented to the possibility of genetic offspring. In cloning, it will often be the case that only the first born identical twin and not the genetic parents must give consent.¹⁹⁰ If the genetic parents acquire no rearing rights or duties from their genetic relation alone, one can question whether the creation of additional genetic progeny without more is a significant burden that requires their consent.¹⁹¹

c. Rearing a clone of self.—A major challenge to understandings of kinship arises if the DNA of one of the rearing partners is used to create the child whom they gestate and rear.¹⁹² Given that twenty percent of a couple's infertility is due to male factors, and that thirty thousand to forty thousand children are born each year through the use of donor sperm, some demand for this form of cloning is likely.

The kinship problem is that the social parent is genetically a sibling of the child—indeed, is an older identical twin—thus changing the traditional generational relation between parent and child. The danger of kinship confusion occurs on several levels. The rearing parent could forget that this child is a person in his own right and view him as merely an earlier version of himself. Such overidentification or attachment could make the child's efforts to detach from the parent more difficult. Alternatively, the parent could project fantasies on the child of what the parent wishes he had done when younger, again confusing the psychological boundaries between the two. The problem in the latter case, however, is less a problem of kinship or lineage than of the effects of the social parent's identification and expectations on the child's welfare. If those problems are successfully negotiated, then no problem of kinship as such arises.

The situation involving self-cloning and rearing also affects the kinship relations between the clone source's own parents and the resulting child.

190. This will depend upon whether the consent of the clone source is sufficient to authorize cloning. See *infra* subsection V(B)(2)(b).

191. One could foresee a conflict between the clone source and her parents on this issue. The question would be whether the clone source's interest in replicating herself through donating her DNA should take priority over her parents' wishes not to have another genetic child.

192. A person's willingness to use their own cells as a clone source will depend on many factors, including their assessment of their own health status. For example, a person who suffers from depression, breast cancer, or some other ailment might be hesitant to clone themselves, even if they have no other way to have a biologic tie with the children whom they rear. (I am indebted to Margot Wellner for this point.)

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The decision to clone and rear oneself means that one's parents have new genetic progeny through no effort, or even decision, of their own. Socially, the clone source will be rearing his own clone, thus putting his parents in the position of social grandparents when they are also genetic parents. In fact, they may not have consented to have another genetic child or even know of its existence. Whether or not they have consented to the cloning, the intention of the offspring who is cloned to rear the resulting child should define kinship relations, with the clone source and his spouse recognized as rearing parents. Although the clone source's parents may experience a strong emotional attachment to the new child, they have not undertaken to have and rear an additional child, and they should not be assigned rearing rights or duties beyond those of grandparents.¹⁹³ This result seems fair because their adult child's decision to clone and rear fits more closely with the next generation's project of having children.

In situations in which the husband rather than the wife is the source of the child's nuclear DNA, several different relations are possible between the wife and the child.¹⁹⁴ In the most appealing case, she will also provide the eggs which are enucleated to receive the husband's DNA, and then gestate the child. This procedure will require egg retrieval and probably stimulation of the ovaries as well. In this scenario, the child's nuclear genetic mother¹⁹⁵ and gestational mother are different, even though the wife will have provided small bits of mitochondrial DNA and the egg into which the transferred nuclear DNA is inserted. If she gestates without providing the egg or nuclear DNA, the child will have the same gestating and rearing mother, and a different major and minor genetic mother. If the couple uses a gestational surrogate as well, then a fourth female aspect of motherhood will be realized.¹⁹⁶

Does this further fragmentation of motherhood into two genetic parts adversely affect the child or kinship relations among the various parties? It will depend on the social and psychological importance of the mitochondrial DNA in the enucleated egg that makes a resulting child possible and the relation between clones and clone sources. At the present time no cultural meanings attend those relationships because they have not previously existed. In terms of effort alone, the role of the egg donor should

193. This result should follow even if they have consented to the cloning of their offspring. Grandparents are not, however, without rights in situations where rearing relations have already existed. See, e.g., *Moore v. City of East Cleveland*, 431 U.S. 494, 504-06 (1977) (recognizing that constitutional protection of the sanctity of the family can extend to the rearing grandmother).

194. The situation of the wife providing the source DNA presents additional variations, including whether she also provides the egg and gestation or only one or the other.

195. The child's nuclear genetic mother is his rearing father's mother. In this case, she might function socially as the child's grandmother.

196. See *supra* note 180 (identifying the four female aspects of motherhood as the major genetic mother, the minor genetic mother, the gestating mother, and the rearing mother).

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be significant. Yet she contributes so little mitochondrial DNA relative to the nuclear DNA that her genetic role may well be marginalized. If only to simplify matters, she should not be regarded as socially significant kin at all.

In the end, it is hard to see that kinship confusion for any of the parties is so great that it is likely to clash with reasonable judgments about forming families through nuclear transfer cloning. True, a couple will be rearing a smaller physical version of one of them, and a danger exists that pathological projections or identifications will occur.¹⁹⁷ With advance counseling and a desire for the child's well-being, however, the novelty of the situation may be successfully managed. After all, the couple's goal is a normal family rearing situation, which they typically cannot achieve coitally. The danger to kinship relations from rearing one's clone is not so great that bans on self-cloning or other forms of cloning are justified.

d. Cloning and rearing one's parent.—Cloning raises more serious problems of family and kinship confusion when the DNA source is one's parent. Using the DNA of a cousin, uncle, or aunt should raise no kinship problems in and of itself. Using the DNA of a sibling should also pose no major problems. In that case, one of the rearing partners will be rearing a younger, identical twin of an existing sibling. The practice of older siblings raising younger ones is not unknown in our culture and should be manageable even when those relations result from cloning.

The situation, however, is more problematic if a couple uses the DNA of one of their parents to create the embryo, which the wife gestates and which the husband and wife then rear.¹⁹⁸ In that case, one would be carrying and then rearing a genetic replica of one's mother or father, or one's spouse's mother or father. A split between the gestating woman and the egg source only complicates what will, in any event, be a highly complicated matter.¹⁹⁹

Here, through cloning the resulting child would be the genetic parent of the person who is serving as its rearing parent. The danger is that the traditional lines between social and genetic parent and child might be blurred or confused, even beyond that which arises with self-cloning, leading to psychological and social complications for all the parties. Without more experience, one cannot tell how problematic such a situation

197. Other complexities would arise if the couple divorces, and the non-cloned partner (*i.e.*, wife) cannot view the child as truly distinct from the cloning—and divorcing—partner (husband).

198. In one respect it would be less problematic: the couple will not have had experience with their parent as a child, and thus would not have as direct a point of comparison as they would if they had cloned an existing or dead child.

199. To avoid overcomplicating the analysis, I will not address it.

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would be.²⁰⁰ Given the great differences in age and development between genetic child and parent, special or severe developmental problems may not arise. If the couple has a good reason for using this source of DNA and has been fully counseled about the risks of psychological projection or conflict, then perhaps the risks are not appreciably greater than in rearing one's own clone or other situations of donors and surrogates.

On the other hand, the situation is sufficiently novel that a couple requesting it may be hard-pressed to convince doctors and other gatekeepers to the technology of the validity of their choice.²⁰¹ Although not necessarily leading to a situation of such psychological suffering that the life of either child or parent becomes wrongful, insistence on cloning one's parent indeed seems distant from the usual parental or family project. Precisely because it is so problematic and strange, requests for it are likely to be rare. A key question will be whether a couple requesting parental cloning is plausibly exercising procreative liberty. If they are not, the risk of confusing kinship and family relations would be a sufficiently rational basis for banning this form of cloning.²⁰² In any event, the risks of cloning one's parent would not justify a ban on the use of other familial sources of DNA, much less on all cloning.

e. Summary of kinship issues.—In sum, concerns about kinship and lineage provide no compelling basis for overriding a married couple's or an individual's wishes to use different forms of cloning to form a family. Kinship issues are only marginally relevant when the DNA of one's embryo or existing children is used. They are more relevant when

200. A common cause of family pathology arises when young children are asked to "parent" their parents, as might arise with illness, alcoholism, or disability. The social and psychological reality of parenting a baby or young child who has one's parents' genes, but who in every other respect is an infant and not one's parent, seems quite different, if only in the much greater capacity of the child (social parent) to nurture and rear his parent (child).

201. Similar issues occasionally confront physicians providing assisted reproduction. Patients needing donor sperm or eggs have on rare occasions requested that their father or mother be the gamete donor. In the case of the father being the donor, the man's wife would be inseminated with her husband's father's sperm. The resulting child would be the half-sibling of the husband, and the genetic child of the social grandfather. Most clinics would probably reject the request, although they might accept a mother's willingness to gestate the embryo of an infertile couple needing a gestational surrogate. Cf. Lorna A. Marshall, *Intergenerational Gamete Donation: Ethical and Societal Implications*, 178 AMER. J. OBSTET. & GYN. (forthcoming June 1998) (manuscript at 14-15, on file with the *Texas Law Review*) (analyzing the ethical issues surrounding intrafamilial gamete donation); Frank Bruni, *The Gods of Fertility: For Reproduction Doctors, the Science Is the Easy Part*, N.Y. TIMES, July 8, 1997, at B1 (reporting that clinics establish their own ethical parameters for the patients they accept and that at least one clinic will not impregnate a woman with the sperm of her father-in-law).

202. As noted earlier, one does not have a right to use any means of acquiring children for rearing. See *supra* note 116 and accompanying text (stating that "we have not yet recognized a right to obtain a child for rearing when there is no gestation or other biological connection involved").

the DNA of a third party is used, but that situation is similar to the kinship problems that arise with embryo donation. Cloning oneself or one's parent poses the greatest problems. In either case, the expected psychological harm or conflict would not amount to a wrongful life for the resulting child, but the question of whether either is so deviant from ordinary reproductive arrangements as to be perceived as beyond the pale of procreative liberty remains to be seen.²⁰³ Determining whether an exercise of procreative liberty is involved is another example of the constitutive value choices required by human cloning and other genetic selection techniques.

7. *Eugenics*.—Another feared harm of human cloning is that it will lead to wide-scale positive or negative eugenics, in which reproduction—whether by cloning or other methods—will occur only if socially approved genes are used.²⁰⁴ Although this objection is highly speculative, it grows out of revulsion at the American and Nazi eugenic sterilization practices in the early part of the twentieth century.²⁰⁵ As a ground for banning human cloning, the argument assumes a slippery slope between any use of human cloning and large-scale eugenics. To forestall an inevitable slide to eugenics, it concludes that a ban on all or most human cloning is justified.

a. *Public eugenics*.—The deepest fears generated by cloning are that it will lead to government-imposed or -conducted reproduction involving genetic selection and engineering, akin to the heavily regimented system portrayed in Huxley's *Brave New World*²⁰⁶ or in Margaret Atwood's *The Handmaid's Tale*.²⁰⁷ Given our current democratic system, it seems highly implausible that the government could require people to clone as a way of improving the gene pool or assuring the most fit offspring. Nor does it seem likely that the government will identify desirable genomes, hire women to gestate the clones, and then rear them. Nor would the government be likely to produce children through extra-

203. See Robertson, *supra* note 93, at 1028-30 (surveying the unsettled areas of procreative rights jurisprudence).

204. See NBAC CLONING REPORT, *supra* note 3, at 74-75 (pointing out that determining which human traits and characteristics are to be favored requires an assumption that is based on selective superiority, which has long been linked to racist thinking).

205. Between 1907 and 1963, more than 60,000 persons were sterilized under state involuntary sterilization laws. See PHILIP R. REILLY, THE SURGICAL SOLUTION: A HISTORY OF INVOLUNTARY STERILIZATION IN THE UNITED STATES 94 (1991). Consciously modeled on the United States program, the Nazi sterilization program soon eclipsed similar American activities. From 1933 to 1945 the Nazis sterilized an estimated 3,500,000 people. See *id.* at 105-10.

206. See HUXLEY, *supra* note 71.

207. See MARGARET ATWOOD, THE HANDMAID'S TALE (1986) (depicting a future dystopia in which society enslaves women as institutionalized surrogates).

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uterine, mechanical gestation if that became possible. Even if such practices did not violate anyone's rights, they are well outside our understandings of the role of government.²⁰⁸ The possibility of public eugenic policies in the future is too tenuous and speculative a basis to justify limiting or infringing personal choice in matters central to the family now.

Other government policies could encourage or cause widespread eugenics, but they are not directly related to human cloning. The government, for example, could require that people know their genomes or the genome of their embryos or fetuses, so that they could make appropriate planning decisions.²⁰⁹ It could even require that they avoid prenatal actions that harm offspring who could be born without the harm.²¹⁰ The goals of such policies exist independently of cloning and might be sought regardless of whether human cloning ever becomes a common practice. The possibility of somatic cell nuclear transfer cloning does raise public awareness about genes, but it is unlikely in itself to increase mandatory government programs for genetic selection of offspring. As with slippery slope arguments generally, even if the feared state of affairs at the bottom of the slope is the unmitigated horrible it is alleged to be, it is that sheer speculation that such eugenic policies would inevitably result from a step in that direction now through cloning.

Nor is human cloning to form or maintain families likely to lead to a government-imposed negative eugenics program, in which persons with certain characteristics or traits are prohibited from reproducing. Both cloning and genetic restraints on reproduction involve aspects of genetic selection of offspring characteristics. But the goal of restricting the incidence of certain genes is a far cry from the use of cloning to choose the genome of children. Given past abuses with compulsory sterilization, the absence of a strong need for such programs, and the lack of any group lobbying for a negative eugenics program, the adoption of such policies is highly unlikely. In addition, the intrusion on reproductive rights and bodily integrity makes such policies constitutionally dubious.²¹¹ It is

208. Indeed, if practiced on a wide scale, it would reduce the overall genetic fitness of the population that is the purported goal of such a policy.

209. It could not require, however, that persons then act on that information, for that would violate reproductive rights or rights of bodily integrity. See Robertson, *supra* note 91, at 468-74 (arguing that procreative liberty should protect against government efforts that force individuals to take into account genetic information when making reproductive decisions).

210. For a discussion of issues that such policies would raise, see ROBERTSON, *supra* note 86, at 173-94 (concluding that ultimately the state's role in encouraging proper prenatal care should be in providing education, counseling, and treatment services rather than imposing coercive sanctions, except in the most egregious cases).

211. At the time of the eugenic sterilization movement, reproductive rights and bodily integrity were not considered to be constitutionally protected. See *Buck v. Bell*, 274 U.S. 200, 207 (1927) (upholding a state compulsory sterilization statute rationalized by a eugenic policy: "Three generations of imbeciles are enough."). Today, courts recognize these interests as within the constitutionally protected realm of privacy. See, e.g., *In re Moe*, 432 N.E.2d 712, 719-20 (Mass. 1982); *In re Grady*,

highly implausible to think that cloning for the family-related reasons discussed above would lead directly to publicly-imposed negative eugenics.²¹²

b. Private eugenics.—The concern about eugenics may actually reflect fears about the growing spread of private eugenics. The ability to choose the genome of children through embryonic or somatic cell nuclear transfer may legitimate and therefore encourage increased use of all forms of genetic selection. As commercial firms enter the field and choice replaces chance, the fear is that parents will increasingly try to engineer offspring traits and characteristics, thus creating a regime of private eugenics.

But this fear is not a sufficient basis for restricting cloning or other genetic selection techniques. It is arbitrary to hold cloning responsible for such a future state. Indeed, people have been very interested in their children's genes before cloning appeared likely, though they have been largely limited to techniques of selection and exclusion, rather than positive engineering. Current practices of screening most pregnancies for genetic anomalies and projects for mapping and sequencing the entire human genome play a much greater role in creating the growing genetic consciousness that pervades society.²¹³ The willingness to use cloning in forming families will reflect the increasing geneticization of society. It is implausible, however, to think that the relatively small number of cases in which embryo splitting or nuclear transfer cloning would be used to form families would greatly affect the willingness to use other forms of genetic selection.

Increased emphasis on the genes of offspring is likely regardless of whether human cloning is available to couples seeking to have and rear biologically related offspring. Other selection techniques will grow in power and specificity, regardless of the fate of human cloning. The fear that a regime of private eugenics will soon dominate human reproduction is too general and speculative a fear to justify stopping family-centered uses of human cloning.

426 A.2d 467, 473-75 (N.J. 1981); *In re Guardianship of Hayes*, 608 P.2d 635, 639-41 (Wash. 1980); *In re Guardianship of Eberhardy*, 307 N.W.2d 881, 891-94 (Wis. 1981) (all recognizing that an incompetent individual could only be sterilized for therapeutic contraceptive purposes, not eugenic ones, and then only if it were clearly shown to be in the incompetent's best interest—that is, she would choose the procedure herself if she were competent to do so).

212. A related set of issues would arise if the government required that only DNA certified as meeting a standard of genetic acceptability could be cloned.

213. See Rochelle Cooper Dreyfuss & Dorothy Nelkin, *The Jurisprudence of Genetics*, 45 VAND. L. REV. 313, 313-14 (1992) (summarizing several developments in diagnostic technology that have heightened public interest in genetics).

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Public Policy

Having discussed the scientific questions and social controversies surrounding cloning, the likely demand for it once it is shown to be safe and effective, and the potential harms that it poses, we are now in a position to discuss public policy for regulating human cloning. In formulating policy, however, we must take account of the state of the cloning art. One set of policy options applies when human applications are still in the research and development or experimental stage. Another set exists when research shows that human cloning is safe and effective.

A. What Policy Now?

The birth of a sheep clone after 277 tries at somatic cell nuclear transfer has shown that much more research is needed before this procedure will be routinely available in sheep and other species, much less in humans. The most immediate policy question is whether to support or permit cloning research in animals and then in humans.

1. *Animal and Human Cloning Research.*—A wide consensus exists that nuclear transfer from somatic cells would provide an important array of therapeutic and scientific benefits, and that research into cloning animals should proceed without restrictions beyond those that exist for animal research generally.²¹⁴

More controversy surrounds the question of human cloning research. Some persons go further and demand that private sector cloning research also be banned, either because they can foresee no valid human applications of such research or because they object to the destruction of embryos that would inevitably occur in the process of research.²¹⁵ If the procedure remains as inefficient as the process involved in the production of Dolly, many oocytes and embryos will have to be produced before the cloned ones implant successfully and come to term. This will lead to a sacrifice of oocytes, embryos, and even fetuses that will be problematic for some individuals for reasons independent of the uses to which cloning is put.²¹⁶

214. See discussion *supra* notes 58-60 and accompanying text (discussing the potential benefits associated with cloning research on animals).

215. See, e.g., *Ethics and Theology: A Continuation of the National Discussion on Human Cloning: Hearing Before the Subcomm. on Public Health and Safety of the Senate Comm. on Labor and Human Resources*, 105th Cong. 43-44 (1997) [hereinafter *Ethics and Theology*] (statement of Edmund D. Pellegrino, M.D.) (premising his moral objections to human cloning research on the deliberate manufacture, manipulation, and destruction of human embryos that would occur).

216. The NBAC, for example, cited a high rate of expected damage to oocytes, embryos, and fetuses, in addition to children, as a reason for finding the use of somatic cell nuclear transfer cloning to be morally unacceptable at this time. See NBAC CLONING REPORT, *supra* note 3, at 65.

The NBAC report on human cloning finessed the issue of embryo research by citing the 1994 recommendations of the National Institutes of Health Human Embryo Research Panel.²¹⁷ That panel had thoroughly reviewed the ethical issues raised by different kinds of embryo research.²¹⁸ It recommended federal funding for certain types of embryo research, including the creation of embryos for research that could not be conducted in other ways, and rejected funding for other types, including nuclear transfer research.²¹⁹ President Clinton accepted most of their recommendations but issued an executive order against the use of any federal funds to support the creation of embryos for research. Congress then enacted a ban on any embryo research with federal funds.²²⁰ Given this record, the NBAC took the position that it need not address the question of human cloning embryo research at all.²²¹

Right-to-life advocates protested this omission. By failing to condemn human cloning embryo research generally, they viewed the NBAC Cloning Report as implicitly approving it in the private sector. They argued in congressional hearings that if human cloning is unacceptable and should now be banned in the public and private sectors, then research that could make human cloning possible should be banned in both sectors as well, especially when that research involved the creation and destruction of embryos.²²² Two bills now pending before Congress to ban human cloning also include bans on cloning research in the private sector.²²³

Unless one is adamantly opposed to all forms of research with human embryos, a national policy against any research into human cloning involving human embryos is difficult to justify and is arguably

217. See NBAC CLONING REPORT, *supra* note 3, at 64.

218. See *id.* (discussing the Report of the Human Embryo Research Panel, published by the National Institutes of Health in 1994).

219. See *id.*

220. See Eliot Marshall, *Varmus Grilled over Breach of Embryo Research Ban*, 276 SCIENCE 1963, 1963 (1997) (summarizing the NIH findings, executive order, and legislative ban on research endangering human embryos). That Congress was serious about this ban became clear when it was discovered that Mark Hughes, a leading researcher in the field of preimplantation genetic diagnosis who had moved to NIH and member of the NIH Embryo Research Panel, was using government equipment and time to conduct genetic studies on cells removed from embryos. See *id.* A congressional committee held hearings on this violation of the ban on any embryo research, and Mr. Hughes was forced to resign. See *id.*

221. See NBAC CLONING REPORT, *supra* note 3, at 64.

222. See *Ethics and Theology*, *supra* note 215, at 17-20 (statement of John M. Haas, Ph.D., S.T.L.), 43-44 (statement of Edmund D. Pellegrino, M.D.) (both objecting to human cloning on moral grounds and urging a federal ban on research to develop technology that will necessarily involve the destruction of embryonic life).

223. The bills are those of Congressman Vernon Ehlers (R-Mich.) and Senator Christopher Bond (R-Mo.). See Stolberg, *supra* note 75; see also Nicholas Wade, *Senate Plans to Weigh Ban on Cloning*, N.Y. TIMES, Feb. 10, 1998, at A16 (noting the Senate's intention to consider legislation that would ban human cloning).

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unconstitutional.²²⁴ Such research might lead to important discoveries unconnected to cloning itself. In addition, it is a necessary precondition to clinical applications of human cloning.²²⁵ Although such research could eventually lead to children being born with the DNA of others, our investigation of the likely uses and harms of nuclear transfer cloning does not suggest that such uses would be so immoral or harmful that all research that might lead to it, including research that might generate other useful knowledge, should be banned. Given the controversies surrounding cloning, Congress and the President have good reason not to use federal funds to support human cloning embryo research, but they should not ban all private sector human cloning research as well.²²⁶ On the other hand, once nuclear transfer cloning is established as safe and effective, it could be viewed as not manipulating embryos at all, and thus not implicating objections based on the creation and destruction of embryos.²²⁷

2. *Should Human Cloning Itself Be Banned?*—Given the still rudimentary knowledge of somatic cell cloning techniques, few persons interested in cloning as a legitimate means of family formation would proceed

224. A strong argument against the constitutionality of such a ban would exist if its purpose is to prevent the development of knowledge about human cloning because of fears about the uses to which that knowledge would lead. See John A. Robertson, *The Scientist's Right to Research: A Constitutional Analysis*, 51 S. CAL. L. REV. 1203, 1281 (1978) (asserting First Amendment protection on DNA research and advocating against onerous legislative restrictions on such research).

225. A physician or couple would want to know if embryos formed by nuclear transfer cleave and grow properly before making a decision to place them in the uterus.

226. An additional reason to avoid a ban on private-sector cloning research is the difficulty in drafting a precise statute that would not also deter other beneficial biomedical research. See *The Prohibition of Federal Government Funding of Human Cloning Research: Hearings Before the Subcomm. on Technology of the House Comm. on Science*, 105th Cong. (July 22, 1997) available in <http://commdocs.house.gov/committees/science/hsy203170.000/hsy203170_of.htm> [hereinafter *Legislative Proposals*] (statement of Alison Taunton-Rigby, Ph.D., Biotechnology Industry Organization) (recounting ambiguities and inconsistencies in the Clinton, Ehlers, and Bond bills banning human cloning).

227. An egg will be enucleated, and DNA inserted into it and then activated. This will produce a preimplantation human embryo, which will be placed in the uterus at the four-to-eight cell stage. Strictly speaking, no manipulation or alteration of embryos has occurred because only eggs and somatic cells have been altered. Because embryos created by somatic cell nuclear transfer cloning result from manipulation of genes and cells but not of embryos themselves, this form of cloning does not violate the Human Fertilisation and Embryology Act in Great Britain, which prohibits "cloning of an embryo." Even though a zygote or embryo results, the procedure has produced a clone of a somatic cell, not a clone of an embryo. Nuclear transfer cloning of embryos, however, would be a different matter. Although not prohibited, such cloning would still fall within the jurisdiction of the Human Fertilisation and Embryology Authority (HFEA) because it involves the creation of embryos outside the body, and thus requires a license from the HFEA to be lawfully performed. See Human Fertilisation and Embryology Act of 1990, ch. 37, § 11(1) (United Kingdom) (1990); see also Pat Walsh & Andrew Grubb, *I Want to Be Alone*, DISPATCHES, Spring 1997, at 1-6. In any event, creation of embryos or fetuses to serve as a source of organs or tissue for transplant does raise issues of respect for prenatal life. See discussion *supra* at Part II(A)(2)(b) (discussing issues related to medical use of embryonic cells).

with cloning unless they had a reasonable basis for thinking that it would lead to the birth of physically healthy children. Of course, it is always possible that rogue scientists or individuals would attempt to clone humans outside of established channels, but that risk is no greater with cloning than with any other experimental technique.

In this situation, the need for a federal criminal law against all human cloning might not seem pressing. Yet, within weeks of Dolly's birth announcement, bills to ban nuclear transfer human cloning were introduced in Congress and in eight states.²²⁸ After ninety days of study, the NBAC recommended that a federal criminal law against human cloning be enacted for a period of up to five years, with its continuation dependent upon reassessment at that point.²²⁹ President Clinton agreed and submitted legislation to that effect.²³⁰ By late 1997 no federal law had been enacted, though California had passed a ban and publicity about a would-be entrepreneur's wishes to clone may have revived the chance of federal legislation.²³¹

Most striking about the NBAC and the administration's position is the lengths to which they are willing to go to draw a firm line against somatic cell cloning at the present time. According to the NBAC, the harm of premature use or experimentation is so great, and the likelihood that scientists and couples would seek to clone prematurely so strong, that the usual safeguards that regulate research and first uses of a technique—bans on federal funding, the IRB review system, professional ethics, and malpractice remedies—would be inadequate.²³² In their view, only a federal criminal law is sufficient to prevent the overwhelming temptation confronting couples and physicians to clone before cloning is safe.

The NBAC's call for a federal criminal ban on a new medical technique has few precedents.²³³ A federal law does make it a felony to buy

228. See NBAC CLONING REPORT, *supra* note 3, at 104 tbl.1.

229. See *id.* at 109. The NBAC's argument for a ban on human cloning was based on the "virtually universal concern regarding the current safety of attempting to use this technique in human beings." *Id.* at 65. It concluded that "[a]t this time, the significant risks to the fetus and physical well being of a child created by somatic cell nuclear transplantation cloning outweigh arguably beneficial uses of the technique." *Id.*

230. The President's message calling for a five-year legislative ban noted, in addition to safety concerns, that human cloning could "threaten the sacred family bonds at the very core of our ideals and our society. . . . [a]nd it could lead to misguided and malevolent attempts to select certain traits to make our children objects rather than cherished individuals." President's Remarks, *supra* note 5, at 845.

231. See Stolberg, *supra* note 75. One bill now pending in Congress calls for a ten-year criminal ban. Other bills call for a permanent ban. See *supra* note 65.

232. See NBAC CLONING REPORT, *supra* note 3, at 95-102 (surveying the various policy options before settling on their recommendation for a federal criminal law against human cloning).

233. New drugs or devices, however, are regulated by the Food and Drug Administration. See *id.* at 99.

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or sell organs for transplant.²³⁴ Another law makes abortion with the intent to provide fetal tissue for transplant a crime.²³⁵ But the federal regulation of bioethical issues, if it exists at all, occurs overwhelmingly through the federal funding power, and it does not include criminal sanctions.²³⁶ Indeed, many harmful and dangerous practices now occur in medicine without federal criminal sanctions. Physician-assisted suicide and active euthanasia, which both doubtlessly occur to some extent, directly harm patients, but Congress has enacted no federal criminal law against them.²³⁷ Many surgical procedures are performed on patients without adequate review of safety, yet no law makes those surgeries a federal crime.

Of course, the fact that federal criminal law has rarely been used in the bioethical area is not a persuasive argument if there is a strong case for doing so. But such a strong case is lacking. The NBAC failed to explain how children who would not be born other than by cloning are helped by not being born at all, nor why it thought there was a real danger that doctors and couples would seek to clone before evidence of safety and efficacy existed.²³⁸ It assumed that doctors and patients would be so driven by the desire to clone and to profit from doing so that they would

234. See National Organ Transplant Act of 1984 § 301, 42 U.S.C. § 274e (1994).

235. See National Institutes of Health Revitalization Act of 1993 § 112, 42 U.S.C. § 289g-2 (1994). This provision was added as part of a legislative compromise to enable federal funding of fetal tissue transplantation research to occur, and it is arguably unconstitutional. See John A. Robertson, *Abortion to Obtain Fetal Tissue for Transplant*, 27 SUFFOLK U. L. REV. 1359, 1379-85 (1993) (arguing that the state does not have a compelling interest in preventing designated donations of fetal tissue sufficient to justify the ban's infringement upon a woman's fundamental right to terminate a pregnancy for any motive whatsoever).

236. For example, federal regulation of human-subjects research has historically occurred through the conditional spending power. See John A. Robertson, *The Law of Institutional Review Boards*, 26 U.C.L.A. L. REV. 484, 498-502 (1979) (describing how Congress uses the conditional spending power to review nonfederally funded research activities involving human subjects by conditioning the receipt of federal grant money for any activity on across-the-board compliance with federal institutional review board standards). More recent innovations include conditioning the receipt of Medicare funds upon hospitals' compliance with notification regulations that require them to actively inform patients of their state-law rights to make advance directives concerning health care decisions (e.g., living wills). See 42 U.S.C. §§ 1395cc(f), 1396a(w) (1994).

237. On April 30, 1997, however, President Clinton signed the Assisted Suicide Funding Restriction Act of 1997, which prohibits the use of federal funds in support of physician-assisted suicide. See Assisted Suicide Funding Restriction Act of 1997, Pub. L. 105-12, 111 Stat. 23 (codified in relevant part at 42 U.S.C. §§ 14401-14408 (West Supp. 1997)).

238. Rather than find existence preferable to nonexistence as those who reject the wrongful life argument do, the NBAC report makes the opposite judgment: nonexistence is preferable to existence. See NBAC CLONING REPORT, *supra* note 3, at 65-66 (refusing to accept the "metaphysical argument" that it is "beneficial" for the child to be brought into this world from nonexistence and finding that the physical risks to the fetus and child outweigh the "arguably beneficial uses" of human cloning). Indeed, in concluding that it is in children's interest not to be born, the NBAC accepted, without realizing, the very possibility of comparing life with nonlife that it went to great pains to reject. See *id.*

ignore the lack of evidence showing safety and efficacy.²³⁹ At the very least, the call for a federal ban was an exercise in symbolic legislation. It allowed the NBAC and other officials to stand up for important human values—the welfare of children—while permitting research to continue.²⁴⁰

The costs of such a stance, however, could well be higher than the NBAC imagined. If cloning quickly turns out to be a safe, effective, and attractive way for some couples to have biologically related children, a time-limited ban will exact a price from those couples who have legitimate reasons for using it. In addition, there is the danger that Congress will attach no time limit to the ban or otherwise place the burden of removing it on proponents of cloning, whose numbers are likely to be too small to be politically effective.²⁴¹ A federal ban on human cloning could also emerge from the legislative process to include a ban on using embryos in human cloning research in the private sector, as well. This legislation could prevent the development not only of cloning and other genetic selection techniques, but also of other kinds of medically important knowledge.²⁴² Of special concern would be its chilling effect on primordial stem cell research, a fertile area for research into human replacement of tissue and organs.²⁴³

Finally, the recommended ban sets an unwise precedent for invoking federal criminal law to settle a bioethics issue. If a federal law is justified at this early stage for human cloning, then it is justified for many other reproductive and genetic situations. For example, the concerns with physical safety cited by the NBAC could be invoked to make it a federal crime for couples not to undergo genetic screening prior to conception or

239. Richard Seed's proposal to offer human cloning notwithstanding, the overwhelming reaction of scientists and doctors was to call for a moratorium on human cloning until safety and efficacy is established. See Wade, *supra* note 223; *supra* notes 74-75.

240. As NBAC member and biotechnology executive Dr. Steven H. Holtzman put it, "[T]here's a very human tendency to know what you want to do but not be clear necessarily about why." Gina Kolata, *Commission on Cloning: Ready-Made Controversy*, N.Y. TIMES, June 9, 1997, at A12.

241. For example, Congressman Ehler's bill to ban cloning has no time limit. See Stolberg, *supra* note 65 (noting that Ehler's two proposed bills would permanently bar federal and private sector funding for cloning studies).

242. There is also the danger that the enacted language will apply to non-cloning practices that involve nuclear or cytoplasmic transplant. For example, the California ban on cloning bans all "nuclear transfer," thus making it a crime to transfer the nucleus of an older woman's egg into an enucleated younger donor egg, which would then be fertilized, as a treatment for cytoplasmic inadequacy or mitochondrial disease. Although not "cloning," nuclear transfer treatments for female infertility are thus prohibited by the California law. See Act of Oct. 4, 1997, ch. 688, 1997 Legis. Serv. 3790 (codified as amended in scattered sections of the CAL. BUS. & PROF. CODE and the CAL. HEALTH & SAFETY CODE).

243. This point was strongly made in hearings before the Subcommittee on Health and Environment of the House Commerce Committee. See *Legislative Proposals*, *supra* note 226 (testimony of Michael D. West).

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to refuse prenatal testing after conception. Such a precedent could also lead to a federalization of rules for assisted reproduction and other forms of genetic selection. Given the lack of pressing need for a law and the difficulties of drafting one that does not also inhibit beneficial biomedical research, the wisest course of action would be to rely on existing regulatory mechanisms and forego a federal criminal ban.²⁴⁴

B. Public Policy When Cloning Is Safe and Effective

An important set of policy issues will arise if animal and laboratory research shows that cloning is safe and effective in humans. Should all cloning then be permitted? Should some types of cloning be prohibited? What regulations will minimize the harms that cloning could cause? What body or entities should enact such regulations? Considering these questions is instructive for coming to terms both with human cloning and genetic selection generally.

1. *Restrictions on Who May Clone and Rear.*—If human cloning is shown to be safe and effective, an important set of policy issues will concern whether it should be banned totally or whether only certain uses of it should be permitted.

a. *Total ban.*—The NBAC relied on considerations of physical safety in calling for a complete ban on human cloning, although it also intimated that any human cloning is morally unacceptable even if physically safe.²⁴⁵ Once adult cell nuclear transfer cloning proves to be safe and

244. There is also a question of federalism. Even if criminal sanctions for cloning were warranted, it does not follow that the federal government should enact them. Matters of family, procreation, and children are generally left to the states unless the states are incapable of handling a problem or national uniformity of law is needed. Even then, out of respect for state discretion, federal action usually occurs as an exercise of the conditional spending power and not through federal criminal law directly preempting state action. See, e.g., Child Abuse Amendments of 1984 § 307, 42 U.S.C. § 10406 (1994) (requiring states, as a condition of receiving federal child abuse prevention funds, to comply with federal standards for ensuring that handicapped newborns are not denied life-sustaining medical treatment); Jacob Wetterling Crimes Against Children and Sexually Violent Offender Registration Program, 42 U.S.C. § 14071 (1994) (requiring states to give communities notice of the release of sex offenders in order to receive certain kinds of federal funding). But see Civil Rights Remedies for Gender-Motivated Violence Act of 1994, 42 U.S.C. § 13981 (1994) (providing federal civil rights remedies for crimes of violence against women that involve interstate commerce). A federal ban on cloning would also have to comply with recent Supreme Court decisions striking down federal legislation because of an insufficient commerce clause connection. See *United States v. Lopez*, 514 U.S. 549, 567-68 (1995) (invalidating the Gun-Free School Zones Act).

245. See NBAC CLONING REPORT, *supra* note 3, at 81, 79-81 ("It may be that a policy which prohibited the creation of children [through] somatic cell nuclear transfer cloning would ban a handful of scenarios for which some people feel sympathy. Nonetheless, it may be necessary to forbid the practice overall to protect other crucial societal values.").

effective in humans, its utility for couples faced with infertility or other needs will have to be squarely faced with the possibility that it will cause substantial harm if practiced.

Based on the analysis in this Article, a total ban on all human cloning is not justified. Focusing only on married couples intent on gestating and rearing their own children, several valid uses consistent with prevailing reproductive and family formation practices have been identified: cloning of embryos might be the sole means through which the couple is able to rear biologically related children; embryonic or somatic nuclear cell transfer might help a couple obtain tissue for an existing child; and cloning might enable a couple to continue the genes of a dead or dying child or spouse.

Other important uses of cloning exist for couples with gametic infertility or couples who are carriers of genes containing severe genetic disease. If both partners lack gametes, they might want to use the DNA of an unrelated third party in lieu of embryo donations from unknown infertile couples. If one of them lacks gametes, use of that partner's own nuclear DNA might be preferable to sperm from an unknown stranger or eggs purchased from an egg donor.²⁴⁶ Although some differences in method exist, the goals sought through cloning are similar to those sought in current assisted reproductive practices and raise similar issues. The choice to accept the special challenges of cloning by nuclear transfer in forming a family falls well within the range of discretion ordinarily granted to couples.

The analysis of purported countervailing harm does not undermine this conclusion. Safety concerns are not relevant because we are assuming safety and efficacy. Eugenics is a larger concern that arises with most genetic selection technologies. Objectification concerns ignore the complex ways in which children are ends in themselves while serving other purposes as well. Individuality, autonomy, and lineage are important concerns, but cloning is consistent with respecting and nurturing the individuality and autonomy of cloned children. Indeed, most parents would endeavor to promote their child's individuality and uniqueness even if they have reasons for wanting the child to have a particular genome. Nor does the risk of confusing kinship relations justify a ban on all cloning. Significant kinship issues arise only when an unrelated third party, one of the partners, or a parent of one of the partners provides the DNA. The first scenario is typical of embryo donation—an accepted practice. The second is more novel, but responsible parents probably could deal with the special chal-

246. An egg donor, however, might still be needed to provide the enucleated egg into which the cloned DNA would be placed. See *supra* text accompanying note 186 (noting the need to induce a donor egg cycle in another woman if the gestating woman does not provide the egg).

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allenges that intergenerational genetic identity might pose. The most troublesome case—cloning and rearing one's own genetic parent—is likely to be both so rare and so divorced from the usual reproductive context that it might not be an exercise of procreative liberty at all.

When carefully analyzed, the alleged harms of cloning tend to be highly speculative, moralistic, or subjective judgments about the meaning of family and how reproduction should occur. Such choices are ordinarily reserved to individuals, free of governmental coercion or definition of what provides reproductive meaning.²⁴⁷ One need not accept human cloning as a morally acceptable way of family formation. But personal moral opposition alone is not an adequate basis for laws that prohibit others from using a technique that enables them to achieve legitimate goals of having and rearing biologically related children. Given the general presumption in favor of reproductive freedom, a ban on safe and effective human cloning in all circumstances is not justified.

One can make the same points in constitutional terms. The right to have children and rear them has been recognized as a fundamental right.²⁴⁸ Despite the lack of textual specification, the idea is widely accepted that coital reproduction, at least between married couples, is protected against state restriction unless compelling reasons for interference are shown.²⁴⁹ It should follow that infertile couples also have rights to have offspring, for they have the same interests in having and rearing offspring as the coitally fertile. Thus, laws that interfere with their ability to use noncoital techniques involving their own gametes, such as IVF or artificial insemination with the husband's sperm, should have to meet the compelling interest standard to be valid. If a right of infertile couples to use noncoital means of reproduction is recognized, then that right might be plausibly extended to the use of donor eggs, sperm, and embryos (without necessarily extending to full surrogacy).²⁵⁰

A necessary implication is that some degree of genetic selection is also protected because the ability to select will often determine whether or not

247. One is reminded of the statement in *Planned Parenthood v. Casey*, 505 U.S. 833, 851 (1992): "At the heart of liberty is the right to define one's own concept of existence, of meaning, of the universe, and of the mystery of human life. Beliefs about these matters could not define the attributes of personhood were they formed under the compulsion of the State."

248. See, e.g., *Skinner v. Oklahoma*, 316 U.S. 535, 541 (1942) (characterizing procreation as "one of the basic civil rights of man"). As Justice Brennan noted in *Eisenstadt v. Baird*, 405 U.S. 438, 453 (1972): "If the right of privacy means anything, it is the right of the individual, married or single, to be free from unwarranted governmental intrusion into matters so fundamentally affecting a person as the decision whether to bear or beget a child." (emphasis in original).

249. See, e.g., *Washington v. Glucksberg*, 117 S. Ct. 2258, 2267 (1997) (citing *Skinner*, 316 U.S. at 535, for the proposition that the "liberty" interest protected by the Due Process Clause includes the right "to have children").

250. ROBERTSON, *supra* note 86, at 35-40 (discussing the history and breadth of the legal right to reproduce and arguing that such a right includes unconventional means).

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reproduction occurs. The right to know one's status as a genetic carrier and act on it either before or after conception, implantation, or pregnancy would follow. If some right to negative selection is presumptively protected, then some forms of positive selection should be as well, for that too will determine whether reproduction occurs.²⁵¹ Thus, embryo splitting and nuclear transfer cloning fall into the presumptively protected category because their availability may well determine whether or not a couple has and rears biologically related children. If so, restrictions on cloning would be valid only if necessary to prevent tangible harm to others. As we have seen, however, most of the objections to cloning do not meet that standard. They are either too speculative or too moralistic to justify governmental interference with quintessentially private choices about family.

Although a cogent argument for a constitutional right to form biologically-related families, including the use of cloning when necessary, can be articulated, it may be naïve to expect all courts to accept such reasoning at the present time. The right to procreate as an aspect of procreative liberty has rarely been litigated as such. Important distinctions about types and ways of fulfilling procreative desires have not fully entered public discourse. The Supreme Court is increasingly reluctant to recognize new fundamental rights as part of Fourteenth Amendment substantive due process.²⁵² However, even if courts do not recognize a constitutional right to clone, policymakers and professionals should nevertheless acknowledge that the concepts and principles underlying procreative liberty provide a strong normative basis for recognizing a right to use assisted reproductive and genetic selection techniques, including cloning, when necessary to form families and treat persons seeking to use these techniques accordingly.

This argument, however, only shows that a ban on all cloning, including the family-centered uses described above, is overbroad. We must also ask if some uses of cloning should be forbidden and whether some regulation of permitted uses is desirable once human cloning becomes clinically safe and feasible.

b. No cloning without rearing.—A ban on human cloning unless the parties requesting the cloning will also rear the child is a much better policy than a ban on all cloning. The requirement of having to rear the clone addresses the worst abuses of cloning. It prevents a person from creating clones to be used as subjects or workers without regard for their

251. See Robertson, *supra* note 91, at 424-29 (arguing that prebirth selection represents part of the basic liberty to make decisions about reproduction).

252. See, e.g., *Glucksberg*, 117 S. Ct. at 2271 (refusing to find a fundamental liberty interest to assisted suicide); *Bowers v. Hardwick*, 478 U.S. 186, 194-95 (1986) (refusing to recognize consensual homosexual sodomy as a fundamental right).

own interests. For example, situations like those in *The Boys from Brazil*²⁵³ or *Brave New World*,²⁵⁴ in which the initiator does not rear, would be prohibited. This rule will assure the child a two parent rearing situation—a prime determinant of a child's welfare.²⁵⁵ Furthermore, the rule would not violate the initiator's procreative liberty because merely producing children for others to rear is not an exercise of that liberty.²⁵⁶

Ensuring that the initiating couple rears the child given the DNA of another prevents some risks to the child, but it still leaves open the threats to individuality, autonomy, and kinship that many persons think cloning presents. I have argued that parents who intend to have and rear a healthy child might not be as prey to those concerns as feared, yet some cloning situations, because of the novelty of choosing a genome, might still produce social or psychological problems.

Those risks should be addressed in terms of the situations most likely to generate them and the regulations, short of prohibition, that might minimize their occurrence. It hardly follows that all cloning should be banned because some undesirable cloning situations might occur. Like other slippery slope arguments, there is no showing that the bad uses are so likely to occur, or that if they did, their bad effects would so clearly outweigh the good that one is justified in imposing the loss of the good in order to prevent the bad.

c. *Ban on rearing a clone of self.*—An important policy question that the safety of human cloning will present is whether self-cloning—using the DNA of one of the rearing partners to create the child whom they rear—should be permitted. The concern centers on the confusion in kinship and rearing roles that cloning and rearing a clone of oneself might produce (as well as the confusion it causes for the clone source's genetic parents). On this view, cloning of one's own children or an unrelated third party is acceptable, at least when the initiator also rears, but cloning oneself is not.

The wisdom of this policy depends on an assessment of the need or benefit cloning and rearing one's own clone serves and the harm it poses. The reasons for self-cloning and rearing have been discussed.²⁵⁷ It is a

253. See *THE BOYS FROM BRAZIL*, *supra* note 83.

254. See HUXLEY, *supra* note 71.

255. See James Q. Wilson, *The Paradox of Cloning*, WKLY. STANDARD, May 26, 1997, at 23-27.

256. First, if the initiator is arranging for the clone of a third party, as in *The Boys From Brazil*, and is not cloning himself, he is not reproducing. Second, the interest in helping others rear or choose the genome of whom they rear is not a fundamental interest or right. The situation is different if the initiator is acting as the agent of a couple who will rear; but then it is the couple's liberty interest which is at stake and not that of the initiator as such. See *supra* subsection III(B)(1)(c)(1)(b).

257. See *supra* subsection III(B)(1)(d) (arguing for the right to clone oneself absent harm to the child or others so long as rearing is intended and rationalizing this as a variation on existing practices such as gamete donation and existing beliefs such as general reproductive freedom).

plausible response to the need for gamete or embryo donation due to infertility or genetic disease and, depending on how one views the importance of genes in defining reproduction, it is also highly reproductive. Of course, such a situation is likely to be highly fraught psychologically, but there is no reason to think that it will invariably lead to bad outcomes. As long as the rearing couple is aware of the dangers and is committed to giving the child a separate identity, the risks of harm may be minimal. Certainly, these potential problems would be within the range of comparable risks assumed by parents in having children or in exercising (or failing to exercise) genetic selection in other circumstances.²⁵⁸

Given the close connection with coital reproduction, one could also plausibly argue that a constitutional right to engage in genetic selection, as an aspect of the right to reproduce, should include the right to create and rear a child with one's own nuclear DNA. The mere prospect of harm or the novelty of the situation is not a sufficient basis for interfering with personal decisions about how one acquires genetically related children for rearing. In the strongest case, the couple will have no alternative way to rear a child genetically related to the spouse with gamete problems. If a couple is well-informed of these risks, is stable, and is interested in the well-being of the resulting child, the choice to rear a clone of one of the partners will be hard to distinguish from protected reproductive experiences and should be treated accordingly.

d. Ban on cloning and rearing one's parent.—The situation of gestating and rearing a child formed by nuclear transfer of one of the spouse's parents presents a less compelling case. Such cases are likely to be rare, but they may occasionally arise. As discussed above, this situation presents the maximum threat to traditional notions of kinship, for it completely reverses the intergenerational meaning of parent and child.²⁵⁹ The resulting child may not be intrinsically harmed because it has no other way to be born. The rearing parents may also adapt smoothly to the psychological novelty of the situation and minimize their identification of the child with the spouse's parent.

Still, the situation is so different from other cloning situations that the couple seeking a parental source of DNA should have the burden of establishing its *bona fides* as a method of family formation. Of course, the

258. For example, persons are presently not obliged to submit to preconception genetic screening, nor are pregnant women required to have fetuses screened for genetic disease, even though both of these actions could prevent the birth of a disabled or diseased child.

259. See *supra* subsection IV(B)(6)(d) (suggesting that the psychological confusion that might result could be surmountable with proper counseling, but noting the extreme novelty of the situation and advising that if not genuinely an exercise of procreative liberty, cloning might rationally be banned).

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couple may be able to carry this burden. After all, daughter-to-mother oocyte donation, and father-to-son sperm donation have occurred without apparent damage.²⁶⁰ Nevertheless, a ban on such cloning would not greatly interfere with the use of cloning in other situations. Unless the couple could show how parental cloning relates to a valid reproductive project, the use of parental DNA might not fit within prevailing understandings of procreative liberty and therefore need not be protected.

e. Ban on single women or men cloning.—Some persons have suggested that cloning should be permitted only if it occurs in a two-partner married setting.²⁶¹ Such a position would affect gay and lesbian couples and single men and women, who might choose to clone and rear themselves or another. A strong reproductive interest exists in at least some of those situations, which such a restriction would infringe. If that interest is to be respected, the policy should be modified to allow cloning in unmarried situations involving a two-partner committed relationship, as might presently occur with a lesbian couple considering to have a child by donor sperm or adoption.²⁶²

This proposed modification would still ban a single woman from rearing a clone of another or herself, and it would prevent a single man from commissioning the cloning of himself or another to produce a child that he intends to rear alone. One could argue that such a ban interferes with the reproductive or family formation rights of unmarried persons. The resolution of this issue should depend upon whether single persons have rights or access to other forms of assisted reproduction and genetic selection. If single persons are granted access to those other techniques, the question then posed is whether cloning presents such additional rearing problems that it should be treated differently.

2. Regulation.—If human cloning proves to be safe and effective and is permitted for some or all of the indications discussed, it is essential that it be done in ways that minimize the special risks that it poses. Some form of regulation seems desirable, if only the specification of guidelines for how cloning should optimally occur. As long as such regulations do not unduly burden access to the technology, they would not interfere with the right of couples or individuals to use cloning to form families.

260. See Marshall, *supra* note 201 (manuscript at 14).

261. See Wilson, *supra* note 255, at 24.

262. Cloning would enable one partner to provide egg and mitochondrial DNA, and the other, nuclear DNA, with either partner gestating. The resulting biologic relations will make each partner a "parent" for purposes of determining child-rearing rights and duties in the event of separation. See ROBERTSON, *supra* note 86, at 134-35.

a. *Consent of the clone source.*—A key regulatory issue is whether the clone source—the source of the nuclear DNA—must consent to the cloning. This issue does not arise when embryos are cloned, although it is relevant when an existing child is cloned (or a previously cloned embryo is placed in the uterus and a later identical twin to an existing child is born).²⁶³ The existing child's consent to the use of its DNA, however, may not be necessary. Children do not ordinarily have the right to determine whether their parents have additional offspring. The fact that the new offspring will be an identical twin does not create such a right, for that fact alone does not create additional burdens or problems for the existing child. As long as the DNA is obtained noninvasively from the first child, the parents should be free to use the DNA without the child's consent.²⁶⁴

Somatic cell nuclear transfer with DNA from any other existing person, on the other hand, should require the consent of the person whose DNA is used. The correctness of this rule is clearest when the DNA is obtained from the source directly, because an unconsented touching or battery might otherwise be involved. However, techniques for recovering DNA from a person may involve such minimal touching that tort doctrines of battery would not apply.²⁶⁵

The consent of the clone source should also be required where the DNA is shed involuntarily in the course of living and recovered from benches, chairs, doorknobs, utensils, clothes, saliva from postage stamps, and other objects that a person has touched.²⁶⁶ Although a person has no physical connection with her DNA once it is shed and implicitly abandons it by moving through the world, good reasons exist for assigning individuals a limited property or privacy right to control whether their DNA is

263. It could be an issue when the cloned embryo is transferred to the uterus, because that could create a later born identical twin for the existing child.

264. This situation may be contrasted with the testing of children for late-onset genetic diseases, such as Huntington's disease or the BRCA1 gene for breast cancer. Ethical standards now require that no testing of minors occur without their consent, because of the heavy impact that such knowledge could have on them later in life. See Dorothy Wertz et al., *Genetic Testing for Children and Adolescents*, 272 JAMA 875, 879 (1994) (stating that a physician must reject a request for genetic testing if he or she believes it would serve no useful purpose and may cause injury); see also Benjamin S. Wilford et al., American Soc'y of Human Genetics and Am. College of Med. Genetics, *Points to Consider: Ethical, Legal, and Psychological Implications of Genetic Testing in Children and Adolescents*, 57 AM. J. HUMAN GENETICS 1233, 1233 (1995) (arguing that genetic testing should be deferred in cases involving adult-onset disease). Having a later born identical twin does not pose the same risks of harm to the existing child.

265. Even a slight brush might be sufficient to dislodge cells from skin or hair from which somatic cell nuclei could be recovered.

266. Cf. Malcolm Ritter, *People Trail DNA Behind Them, Researchers Say*, AUSTIN AM. STATESMAN, June 19, 1997, at A17 (describing how DNA can be transferred to the surfaces of objects touched during the course of ordinary activities).

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used to create another person.²⁶⁷ Even if clone sources have no direct legal rights or duties toward their later born twin, the relationship is a novel one with potential psychological complications that persons should be free not to incur. A legal remedy in damages should be available for those whose DNA is used without their consent.²⁶⁸ The DNA source, however, should not thereby automatically qualify for rearing rights and duties in the resulting child.²⁶⁹

The requirement of obtaining consent from the clone source raises two further questions. One is the question of whether clone sources may sell the right to use their DNA.²⁷⁰ Celebrities may try to reap additional income from the sale of their DNA to ardent fans or others. Because the demand for their DNA is a result of investment in their own human capital, one could argue that compensation is appropriate as an incentive to develop that capital fully.²⁷¹ Payment could also be justified as advance compensation for any social or psychological complications that arise from having a later-born identical twin. The idea of selling DNA for cloning, however, is likely to be met with widespread repugnance, the same type of antipathy associated with selling embryos or organs for transplant.²⁷² If adult somatic cell nuclear transfer becomes an accepted technique, one might expect laws to be passed that protect the clone source's right to consent to cloning but which prohibit payment or a market in DNA.

Another question concerns the use of DNA of persons who are deceased, if such DNA proves viable for cloning.²⁷³ Ordinarily, privacy rights expire with one's life, although certain interests in name and

267. Fourth Amendment law, however, allows the government to search garbage and trash cans on the street prior to pick-up on the theory that there is no reasonable expectation of privacy in one's trash. See *California v. Greenwood*, 486 U.S. 35, 39-40 (1988). This precedent would allow the state to recover DNA from garbage or other sources for law enforcement purposes.

268. The leading case on rights in one's cells, *Moore v. Regents of the University of California*, 793 P.2d 479 (Cal. 1990), denies a property right in spleen cells but recognizes a right of informed consent to the taking of the cells when the doctor has a fiduciary interest in their use. See *id.* at 485, 491-92. That case could accommodate damages for unconsented cloning *tout court* on either a property, privacy, or informed consent theory.

269. Note that the argument concerning the right of consent of the DNA source is not a constitutional one. At most reproduction *tout court* is occurring, and the interests implicated may not warrant independent constitutional protection. See *supra* notes 119-21 and accompanying text (arguing that because such reproduction involved genetic transmission without rearing duties or rights, the source of the DNA may not have a right to permit the cloning to occur except as it derives from the initiator's right to make the clone).

270. I am indebted to an unpublished paper by Neil Netanel on the right of publicity for elucidation of this issue.

271. However, the purchaser of the celebrity's DNA for cloning should remember that the source's investment in developing his talents may be more responsible for his success than his DNA.

272. See, e.g., National Organ Transplant Act of 1984 § 301, 42 U.S.C. § 274e (1994) (making it a federal felony to buy and sell human organs).

273. Unless the person is only recently deceased, their DNA may no longer be living and will thus not be able to serve as the source of DNA for nuclear transfer cloning.

personality may survive death.²⁷⁴ It may be that DNA, like the rest of the body and its parts, will be subject to the wishes of the person while alive or next of kin upon death. Under this approach, the next of kin would have to consent to the use of the deceased's DNA as a source of nuclear transfer. Such a rule may not be unreasonable, given that a child born of the deceased's DNA will be an identical twin of the deceased and will have kinship relations with her survivors.

b. Consent of the clone source's genetic parents.—Should the consent of the clone source's genetic parents also be required for cloning to occur? The argument that it should is based on its reproductive implications for them. Cloning creates a later-born identical twin for the clone source, but an additional genetic offspring for the clone source's genetic parents. Even if no rearing rights or duties in the resulting child attach, the social and cultural meanings that attend gene transmission may still stir up strong psychological and social feelings in the clone source's parents.

Because it is so like reproduction, a cautious societal policy toward cloning would give the clone source's genetic parents, as well as the clone source, the right to veto the use of the clone source's DNA for reproductive cloning. Such a policy, however, could lead to conflicts between the clone source and her parents over whether her DNA may be used to create another person. Ordinarily parents do not have a right to determine whether their offspring reproduce and thus make them grandparents. Genetically, however, cloning of their offspring makes them genetic parents, even though they may occupy the social role of grandparents.

If human cloning becomes an accepted technique, such conflicts will need resolution. At bottom, the question is whether reproduction *tout court* through cloning is such an imposition on persons that their consent should be required, even if withholding consent will prevent their own offspring from transmitting their DNA to others. The answer will ultimately depend upon our assessment of the psychological burdens or meanings that attach to being cloned and to reproduction *tout court*.²⁷⁵ One could reasonably view the interest of the clone source's parents as too

274. See Kenneth E. Spahn, *The Right of Publicity: A Matter of Privacy, Property, or Public Domain?*, 19 NOVA L. REV. 1013, 1036-38 (1995) (observing that whether a person's rights in his likeness or identity are descendible depends upon whether the court interprets such interests as privacy rights, which terminate at death, or property rights, which pass to the estate).

275. A similar issue arises in disputes between divorcing couples over the disposition of frozen embryos. See *Davis v. Davis*, 842 S.W.2d 588, 604 (Tenn. 1992) (holding that when a dispute arises over custody of pre-embryos, competing interests will be weighed and the party who wishes to avoid procreation, while not having an automatic veto power, should prevail unless the other party has no other reasonable means of achieving parenthood).

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intangible or tenuous to justify overriding their adult offspring's wishes to donate her DNA to others, just as the consent of both identical twins is not necessary for one of them to reproduce, even though the resulting child will be the genetic child of the nonconsenting twin as well.²⁷⁶ But then no rearing duties, such as child support or even contact, should be imposed on them as a result of the genetic connection of parenthood that will result.

c. Informed consent and psychological screening.—Human cloning, although continuous with other assisted reproductive and genetic selection techniques, does pose special medical, psychologic, and social challenges that persons considering it should clearly understand.²⁷⁷ Regulations to ensure that couples considering cloning are fully aware of the medical risks of the DNA transfer procedure itself, including likely success rates, are clearly desirable and justified. In addition, physicians or others providing DNA transfer procedures should inform couples contemplating such procedures of the special social and psychologic challenges posed so that the problems of individuality, autonomy, and lineage that could arise are minimized.

Wise policy would also require couples requesting cloning, particularly of themselves or their children, to undergo psychological screening and counseling prior to the procedure. This policy will ensure that couples are fully informed of those risks and will enable doctors to screen out those who seem unstable or not able to handle the special challenges posed. Such counseling should address the basis of the parents' desire to choose particular DNA for their expected child and the issues and problems which that selection poses, including the importance of respecting the child's individuality and autonomy in her own right and the dangers of parental expectations of the child based on the chosen genome.

d. Rearing rights and duties in resulting children.—An important regulatory issue that will arise with human cloning is the need to clarify parental rights and duties in resulting offspring. Defining relationships from the outset will minimize detrimental legal battles over child custody and visitation and will help reduce any confusion over kinship. Clarification and certainty can be achieved either by legislative specification of those relations or by legislative or judicial recognition of the precloning agreements of the affected parties.

276. The nonconsenting twin will have a genetic heir of the same degree as if he had chosen to reproduce himself. (I am indebted to Einer Kluge for this example.)

277. A right of confidentiality should also apply. The information is personal, part of medical records, and should be kept private.

The cloning of embryos or children does not pose this problem because the clone initiator and rearing parents are also the genetic parents. The relations of parent and child, grandparent and child, and child and sibling are clear because the child has the same kinship relations with those parties as if she had been coitally conceived. Still, the novelty of being the identical twin of an older sibling may affect sibling relations, and to some extent, how family members, if they are aware of a child's cloned origins, perceive them. Legislation specifying rearing relationships is least needed in this situation.²⁷⁸

Clarification of kinship relations is most needed when DNA from an unrelated third party or from one of the rearing partners or a member of their family is used. In the case of an unrelated third party, the standard case will pose the same kinship issues that arise with human embryo donation. The intention of the parties is for the recipients of embryo donations to gestate and rear a child who is genetically the offspring of others. Legislation in several states has legally recognized this arrangement and courts in other states are likely to reach the same result if ever presented with a dispute.²⁷⁹

A similar solution should apply to a child born after DNA transfer from a third party. One who provides the DNA for a child to be reared by another should be viewed as voluntarily relinquishing any rearing rights or duties in resulting children, as would the donor of the enucleated eggs into which the cloned DNA is placed. Law and regulation should give effect to this arrangement, so that ensuing kinship relations are clear and certain. The law should also bar the clone source's genetic parents from any rearing role, even though the resulting child is their genetic offspring.

Kinship and rearing relations in the likely situation of individuals using their own DNA in lieu of gamete donation should also be specified. The person consenting to be cloned is undertaking to rear the resulting child. This commitment to function as the legal father or mother, together with gestation, should be given binding legal effect just as it is with donor gametes.²⁸⁰ The social situation makes the clone source the parent of the clone, who is the social parent's own later-born twin. The source's

278. If comprehensive cloning legislation is being considered, then clarifying this point might be worthwhile. In addition, if the egg source is a donor, legislation that bars her from any rearing rights or duties would also be desirable.

279. See TEX. FAM. CODE ANN. § 151.103 (West 1997) (stating that the resulting child from embryo implantation is the child of the birth couple and not the child of the donor or donors of the pre-implantation embryo); see also Robertson, *supra* note 111, at 891 (stating that Texas and Florida, currently the only states to explicitly recognize embryo donation, both designate the recipient woman and her spouse as the parents, but they do not address the enforceability of arrangements whereby donors and recipients share in raising the offspring).

280. In sperm donation, the consenting husband is the legal father for all purposes and the sperm donor none. See ROBERTSON, *supra* note 86, at 127-28 (noting that this rule is established by statutes and court holdings in more than thirty states).

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parents, who are the clone's genetic parents, should also be clearly recognized as social grandparents and not assigned any rearing rights or duties.

Of course, the child, if informed of her cloned origins, will still have to deal with the fact that she has an identical twin in the world. Clarifying the legal status of the participants will help normalize the relationship. The importance of the genetic choice that made the child should recede as the child's individuality emerges. Questions of whether the child should be told of his origins and allowed to meet his DNA source—his earlier born twin—and that twin's genetic parents will also have to be addressed.²⁸¹ Overall, however, specification of resulting kinship relations and the consequent childrearing rights and duties will minimize the social and relational problems that human cloning presents.

e. Limit on number of clones.—Any practice of human cloning should have clear legal limits on the number of children who may be born with the same DNA, whether at the same or different times. Such a policy will minimize the problems of individuality that cloning appears to present for resulting children and will help ensure that any resulting child is fully regarded as a worthy individual in her own right.²⁸²

A limit of no more than three clones born from DNA is a reasonable line, although other numbers might also reasonably be chosen as well. A three-child limit is consistent with most reproductive needs and would even permit a couple to have simultaneously born identical twins by cloning. At the same time it would prevent the birth of many individuals with the same DNA, thus diminishing the popular perception of cloning as a way to produce multiple copies of a single person. Problems of assuring individuality and separateness will remain, but they will be lessened if the couple and child know that only one or two others possess the same DNA.

Of course, the fourth, fifth, or *n*th clone of a particular DNA would not itself be harmed, not having any alternative way to be born. Nor would it hurt the children previously born with that DNA to have another twin because they gain no rights or duties as a result and may never even learn of the later cloning.²⁸³ The interest in having and rearing children is not involved in simply providing DNA for others to use in having

281. *Cf. id.* at 123-25 (surveying the policy issues confronted when regarding the question of secrecy versus disclosure of gamete sources in the related practice of sperm or egg donation).

282. It would also reduce the risk that cloning could affect diversity or cause other problems that could arise with too many individuals with the same genome, for example a town or community consisting of multiple clones of the same nuclear DNA. See JONATHAN GLOVER, WHAT SORT OF PEOPLE SHOULD THERE BE? 36-37 (1984).

283. One assumes that the fact of somatic cell nuclear transfer as the source of a child's DNA will be kept confidential. Even if the child is eventually told, there is no reason why later uses of the same DNA will be revealed to children or their parents. Of course, they may meet other children born with the same DNA in the normal course of life, and thus might learn in that way.

offspring.²⁸⁴ On the other hand, couples seeking DNA who have already produced three additional children can argue that they will not gestate and rear children unless they can use the particular DNA that has already produced three children. Whether this claim deserves respect will depend on the importance assigned to having yet another child with the same DNA when several persons with that DNA already exist.

Professional guidelines for gamete donation now limit the number of children that can be born from a single sperm donor to ten.²⁸⁵ The same number has been suggested as a limit for children born from a single egg donor. The reason for these limits is to protect the donors and to minimize the risks of consanguineous marriages occurring unwittingly between people who are half-siblings. With cloning, the rationale for a limit is to minimize the risks to the individuality of the resulting children. A limit on the number—whether two, three, or n —will help, even though it will not eliminate all issues of separateness and uniqueness that using the DNA of others to have children poses.

f. Professional discretion or a regulatory agency.—An important issue in any regulatory approach is whether the professionals directly involved can be trusted to provide cloning or other reproductive services in a safe and ethical way, or whether a governmental agency is needed to oversee their practice. Some countries, such as Great Britain, have chosen the latter course and created a Human Fertilisation and Embryology Authority to regulate both the safety and efficacy of assisted reproduction and the introduction of new techniques.²⁸⁶

The United States, on the other hand, has a much more decentralized system that leaves considerable discretion to the professionals and consumers directly involved and the institutions where services are provided. Some federal regulation exists through the institutional review board system of monitoring research with human subjects, and FDA approval of the safety and efficacy of drugs, devices, and biologics. Voluntary moratoria have, from time to time, been respected by geneticists, and national commissions, such as the NBAC, have provided

284. See *supra* subsection III(B)(1)(c)(2) (arguing that a right to be cloned *tout court* will not be legally or morally protected but seen only as derivative of the right of the initiator to choose a DNA source).

285. American Fertility Soc'y, *Guidelines for Gamete Donation*, 59 FERTILITY AND STERILITY 1S, 4S-9S (1993). It is unknown how this guideline is enforced. Presumably it would be admissible as proof of the standard of care in a malpractice action against a clinic that so overused a particular donor that offspring inadvertently married their half-siblings.

286. Human Fertilisation and Embryology Act of 1990, ch. 37, § 3(1)(a) (United Kingdom) (1990) (prohibiting the creation of an embryo through cloning). Under the authorizing legislation, cloning of an "embryo" is not permitted. See *id.*; Walsh & Grubb, *supra* note 227, at 2.

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guidance to policymakers.²⁸⁷ However, many persons think that a permanent federal commission or agency to oversee new reproductive and genetic technologies, such as cloning, is necessary. A major issue for future policymakers is whether the current decentralized system, in which much discretion rests with the professionals and consumers directly involved, will continue when cloning and other genetic alteration techniques become available. Based on past experience, considerable reliance on professional discretion is likely to remain, though it is possible that the special concerns that arise with cloning could lead to a more permanent governmental body overseeing new reproductive and genetic techniques.

g. Other regulatory issues.—If human cloning becomes available to couples who need it, other regulatory issues will arise. A pressing one is whether a national registry of children created through DNA transfer should be created to enable the incidence and effects of nuclear transfer cloning to be studied.²⁸⁸ Still another would be the extent of limitations placed on the use of third-party DNA, for example, because of the possible effects on children or others from having particular DNA. As the technology of extra-uterine gestation develops, the possibility of total gestation outside a uterus will also have to be addressed. Funding and access issues will also be important. The law of wills and estates will have to be altered. An additional set of regulations to assure health and safety will arise if cloning becomes a viable technique for producing tissue and organs for transplant from embryonic stem cells or early abortuses.

VI. The Lessons of Cloning for Genetic Alteration

Our investigation has focused on human cloning as a potential technique for forming families. Issues of genetic selection and family autonomy, however, arise in many other contexts. Genetic selection through preconception carrier screening, preimplantation genetic diagnosis, or prenatal screening of fetuses now occurs in most pregnancies.²⁸⁹ Germline gene therapy and other forms of positive intervention, such as nonmedical enhancement and intentional diminishment, loom on the horizon.²⁹⁰ Although these procedures do not replicate the entire genome, they will make specific alterations of genes possible.

287. See NBAC CLONING REPORT, *supra* note 3, at 96-100 (suggesting that a private moratorium on human cloning would most likely result in high levels of compliance and would provide more adequate guidance to the courts).

288. Duties of confidentiality to children and families might prevent such research from occurring.

289. Estimates indicate that over 60% of all pregnancies in the United States are now screened for some kind of genetic malformation. See ROBERTSON, *supra* note 86, at 149.

290. Other potential techniques, such as chimerization, fetal mating, testicular transplant, and transgenic humans, are discussed in Silver, *supra* note 141, at 165, 171, 195.

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- b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
- b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
- b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
- b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

The current focus of such efforts is on gene therapy—inserting or deleting genes in order to cure or treat disease. A major obstacle has been developing a vector that can target genetic changes without causing other effects.²⁹¹ Once such vectors are developed for somatic cells, attempts to cure the disease at the embryo level will occur. If successful, the genetic alteration will pass on to that person's progeny.

The development of germline gene therapy will open the door to other attempts to insert, delete, or alter genes in early embryos or in cells that are then used as the source of DNA to create embryos.²⁹² Genetic alteration might be feasible if single genes are associated with particular characteristics, a highly unlikely but not impossible occurrence. If so, some parents will want to insert genes that enhance or increase intelligence, memory, beauty, strength, or other desirable traits in offspring. In rare cases, parents may even request prebirth genetic elimination of characteristics, such as deaf parents who wish the child they rear also to be deaf.²⁹³ If these techniques become available, the scope of parental rights to select genetic characteristics of offspring will also arise.

The ultimate handling of issues of prebirth genetic alteration will depend on the precise alteration at issue, its benefits and risks, and how it fits into family and reproductive life generally. The discussion of cloning foreshadows many of those issues and shows where the ethical, legal, and policy fault lines are. As with cloning, distinguishing good and valid uses from abusive or harmful ones will be key. A crucial issue will be whether the alteration is being used in a family-centered positive way, or whether it is being used to objectify or customize children without concern for the interests of the resulting child.²⁹⁴ In resolving these issues, we will necessarily be defining the values at stake.

291. See W. French Anderson, *Prospects for Human Gene Therapy*, 226 *SCIENCE* 401, 407 (1984) (discussing vectors for gene therapy and problems of genes rearranging their own structure or exchanging sequences with other retroviruses).

292. The report by the Wilmut team of the successful creation of a sheep with a human gene from insertion of the human gene into fetal skin cells followed by somatic nuclear transfer cloning indicates that similar genetic alteration prior to transfer of nuclear DNA may eventually be feasible in humans. Cf. Kolata, *supra* note 27 (announcing the birth of the transgenic sheep).

293. A variation on this intentional diminishment of offspring characteristics would be the selection of a genome with defective genes or genes that are not associated with prior traits. Although strictly speaking not a case of diminishing what would otherwise have been a normal birth, this would be an example of not choosing a reasonable or good or best-possible genome for someone. Such an action would implicate a possible duty to make the child as reasonably well-off as possible. Cf. ROBERTSON, *supra* note 86, at 171, 170-71 (discussing the genetic fabrication of "lesser engineered" persons and distinguishing such actions from legitimate genetic selection falling within the scope of procreative liberty).

294. Although even customized children may not be harmed in being born if there were no other way for them to have come into being, the willingness of a couple to do so will be relevant to an assessment of whether they are validly exercising procreative liberty. See the discussion of wrongful life *supra* subpart IV(A).

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The question of altering genes to enhance (or diminish) offspring traits does differ from cloning in several important ways. First, most instances of genetic alteration will involve a couple that is reproducing genetically, if not also gestationally and socially, thus eliminating the need for another's consent, as is necessary in cloning a third party.²⁹⁵ Second, issues of uniqueness and individuality will not be as salient because no replication of the DNA of another will be occurring.²⁹⁶ Third, concerns about kinship are also likely to be absent here, for alteration is most likely to occur using the DNA of an embryo or child formed from the couple's gametes (unless the DNA of another is being altered). Fourth, couples will usually choose to clone because of difficulties in having children in other ways.²⁹⁷ Those using alteration may be able to reproduce coitally, but they have chosen to go through IVF in order to alter genes.

Common to both cloning and gene alteration, however, is the issue of instrumentalization and objectification of the child. A pervasive concern about cloning is the risk that choosing the child's DNA will turn the child into a mere instrument or object to satisfy parental agendas that conflict with treating the child as an end in herself. Although responsible families can successfully negotiate those dangers, the danger is a recurring one and is likely to exist in situations of genetic enhancement and diminishment as well.

A couple who seeks to alter the genes of an embryo to enhance an otherwise normal child's capabilities is in danger of being more interested in genes than in the child for her own sake.²⁹⁸ Instead of conceiving coitally, they will undergo one or more expensive cycles of ovarian stimulation, egg retrieval, and in vitro fertilization in order to gain access to embryos and their genes. It may be that few parents would be motivated to take such steps except out of love and concern for their expected child. On the other hand, it is also possible that few parents would go to such trouble unless they were fixated on the child as an object to serve their own needs. Given these possibilities, couples seeking to alter genes will have to convince gatekeepers and policymakers that the alteration is justified as part of their liberty interest in having or rearing offspring. Justifying intentional diminishment will be even more difficult.

295. That is unless they are seeking to alter the DNA of another in the process of nuclear transfer cloning.

296. However, autonomy and expectation issues would still arise, because altering genes assumes that they are influential, if not also determinative of a person's characteristics.

297. Cloning to produce tissue for transplant is an exception.

298. Sought after traits might include height, memory, intelligence, skin color, or certain behavioral traits. See LEROY WALTERS & JULIE GAGE PALMER, *THE ETHICS OF HUMAN GENE THERAPY* 108-24 (1997) (discussing the desirability and ethical problems of physical, intellectual, and moral enhancements).

Resolving these questions will pose many of the same constitutive questions that arise in determining the response to human cloning. Decisions about prohibiting all or certain types of genetic alteration will have to be made and the effects of maldistribution of the technology considered. The extent of procreative liberty will also have to be defined, as will the notion of harm when children would not otherwise have been born but for use of the technique in question. Where cloning forces us to confront the meaning of identity and family, gene alteration will force us to confront the limits of instrumentality in seeking the good of offspring. As with cloning, the answers to these questions will constitute or define the very values and rights at issue.

VII. Conclusion

Cloning and assisted reproductive technology force us to think deeply about the meaning of genes, identity, reproduction, parenting, children, and our connection with family and nature. Such issues come to us structured as problems of liberal decisionmaking. Is fundamental reproductive liberty involved? Do the harms justify intruding on those liberties? Is regulation to minimize ill-effects consistent with the liberty rights at stake?

As we have seen with human cloning and will see again as other techniques of genetic selection and manipulation become available, the answers to these questions are only partially determined by our past practices and understandings. Past practices will help form a bridge to the twenty-first century's genetic practices, but we will have to construct most of that bridge as we proceed. Cloning and genetic alteration will force us to define and constitute ourselves as we confront the genetic meanings of family and reproduction in these new technologic endeavors.

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