Twelve

HARM, LAW, AND REPRODUCTIVE CLONING

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1. Introduction

> If there is to be a total prohibition of any form of reproductive cloning, it is important that it is supported by principled arguments why such a technique should be banned even if it were shown to be safe, effective, and reliable. Without such arguments, an indefinite absolute ban could not be considered rational.[1]

In 2005 the United Kingdom House of Commons Select Committee on Science and Technology published a report on reproductive technologies and the law.[2] Among a number of controversial suggestions, it mooted the idea that the legislation passed to criminalize reproductive cloning was hasty and irrational. Much of the rest of the Select Committee's report focused on the presumptive freedom of individuals to pursue their own ends, and the need for restrictions on this freedom to be based on sound evidence of harm.

The following statement from Mill is included in the report:

> The only purpose for which power can be rightfully exercised over any member of a civilised community, against his will, is to prevent harm to others. The only part of the conduct of any one, of which he is amenable to society, is that which concerns others. In the part which merely concerns himself, his independence is, of right, absolute. Over himself, over his own body and mind, the individual is sovereign.[3]

The committee's attitude is further exemplified by the following statements:

> The state should not prevent someone having a child—by assisted reproduction or other means.[4]

and

> The state should intervene only in carefully defined and justified circumstances, where there are specific harms in reproductive decisions.[5]

In this discussion I want to explore the kinds of harm which might be thought to justify a ban on reproductive cloning. It is commonly assumed that the harms which would be suffered by cloned children themselves are probably sufficient to warrant a complete ban. However, I suggest that (a) many of the supposed harms which would afflict clones have been overstated, and (b) children born as a result of cloning cannot be said to be harmed by being brought into existence. I argue that, while the Select Committee's Millian stance may be the correct one to take with respect to the law and assisted reproductive technologies (ARTs), it is misguided in so far as it is applied to the *children* born of ARTs. If compelling grounds for a legal prohibition of cloning are to be found, they must be based on other concerns: harm to society, for example, or threat to public resources.

2. What is the Harm of Reproductive Cloning?

John Stuart Mill claimed that the only just reason for interfering with someone's liberty is the prospect of their infringing someone else's liberty, for example by harming them.[6] This injunction leaves scope for whole swathes of immoral action that are not preventable by law. However, this is not unreasonable. Some actions are unamenable to proscriptive legislation. It might be possible to pass a law against lying, but it would be impracticable to try to enforce it. Law and morality play different roles in society, and this is why we can ask of an action *both* "Is it legal?" and "Is it right?"

In societies whose values are informed by a variety of different cultural, moral, and religious influences, it is hard to see how the state *could* undertake to enforce the moral views of all its citizens, in all their nuances and subtleties. This being the case, while there may be acts that are considered morally reprehensible by some or even all members of society, it does not follow that they should be illegal. In this discussion, I want to separate the legal from the moral question, in the context of human reproductive cloning, to establish that, while cloning might be morally wrong, it should not necessarily be prohibited by law.

While we cannot necessarily agree about all aspects of morality, harming others or restricting their liberty might be regarded universally as something to be avoided (I recognize that this is a contentious claim in itself: harm is not an easily defined concept, and even if it were, it still leaves the question of who, or what, we should

avoid harming. I will address these issues later in my discussion.) So, while we need a general agreement not to interfere with one another in order for society to function, we also need to agree that, should the exercise of one individual's freedom cause harm or loss of liberty to another, the *prima facie* rule of non-interference may be overridden in the interests of preventing this harm. Following on from this point, it seems reasonable to assert that legislation which restricts people's actions should, as Mill says, be employed only where there is reason to think that an individual's actions *will* cause harm to someone else. This is not to say that harm to others is the only morally relevant consideration, but that it is the only morally relevant consideration *to the state and to legislators.*

Suppose then that a would-be "parent" has found scientists—and surrogates where necessary—who are willing to assist in cloning him or her (that is, the third parties are not being coerced in any way). If unchecked by the state, the free exercise of these individuals' liberty will result in a cloned child. Can we justify impeding this liberty on the grounds that the clone will be harmed?

3. Risks to Cloned Children

> The use of this technique to create a child would be a premature experiment that exposes the developing child to unacceptable risks.[7]

Cloning is an intricate and highly uncertain procedure. It is widely known that Dolly the sheep was the sole successful result of 277 attempts. This in itself might seem to argue for caution where cloning human beings is concerned. John Harris has said that the safety consideration is "the one decent argument against cloning."[8] However, biologist Lee Silver has suggested that in fact cloning would be *safer* than natural conception because it bypasses the most common birth defect: having the wrong number of chromosomes.[9] Other common genetic birth defects come about through recessive genetic diseases, for example cystic fibrosis or Tay-Sachs. Again, this danger is circumvented if the cloned cell comes from a healthy adult. (There is a question here of course, as to what would happen if the cell did *not* come from a healthy adult. Silver does not address this possibility; I will explore this issue later on.)

Silver also observes that despite the apparently unpromising fact that 277 eggs were used in order to obtain only one live clone, it is important to remember that only 13 of the eggs actually started to develop into embryos, and of these, 12 were miscarried early in

pregnancy. The implication is that only the "fittest" cloned embryos would survive to be born anyway; a kind of natural filter mechanism would weed out the worst results. Therefore, Silver seems to imply, cloning would not necessarily result in children with grotesque birth defects or genetic abnormalities, since such abnormal embryos would be unlikely to reach the stage of birth.

One can compare this with what we know about the apparent precariousness of natural conception: very few fertilized eggs result in live births, as frequently there are genetic or other anomalies which result in failure of the embryo to develop. In many cases, the woman will never know she has been "pregnant," since the embryo is not miscarried as such, but merely re-absorbed into the woman's body.[10]

In the light of this, the fact that only one out of thirteen fertilized eggs resulted in a live clone, does not look so shocking. And as Daniel Brock has suggested, if it is possible to bring the risk of failure or early miscarriage within the range of "normal" pregnancy, or of widely-accepted ARTs such as in vitro fertilization (IVF), it would seem that there are no grounds for a permanent ban on cloning based on these early harms.[11]

Brock assumes that the moral issue is for us not to exceed the degree of "natural" danger involved in conception. One could argue against this on the grounds that what we do deliberately is morally different from what occurs naturally. However, this type of argument focuses on the character and motives of the agent, rather than the harms involved, and is therefore not central to my discussion. For now, I will accept Brock's contention that a similar or lower risk level to that involved in "natural" pregnancy would be acceptable at least in the eyes of the law.

Silver's comments do not address the harm which repeated failed cloning attempts and miscarriages might cause to the woman who gestates the embryo. The effects of ARTs in general upon women may be regarded as a cause for concern.[12] However, this is a separate argument. For the moment, I assume that harms suffered by women in the process of cloning would be voluntarily risked by autonomous adults, and therefore do not necessarily constitute grounds for a ban.

4. Unknown Unknowns

> It is theoretically possible, although unlikely, that something totally unknown could go wrong.[13]

Any experimental procedure is likely to carry unforeseen consequences, since it is simply not possible to cover every eventuality

in advance. Gregory Pence's remark, above, seems very optimistic. Reports have suggested that children conceived using IVF techniques are at increased risk of certain harmful conditions.[14] Similarly unpredictable consequences could result from attempts at cloning. Such a view was certainly shared by The National Bioethics Advisory Commission, which cited "unknown risk" in its assessment of safety issues, as part of the justification for recommending a ban on human cloning.[15]

One of the problems inherent in evaluating what have been termed the "unknown unknowns" of new technologies is that by definition, such risks are impossible to foresee. Perhaps because of this fact, it is difficult to articulate an argument for legislating against a procedure on these grounds. It may be that the best we can do is to attempt a reasonable guess at what results *might* ensue from particular technologies, adopting a worst-case scenario, and weighing this up against the supposed benefits of the technology.

5. Experiments on Human Beings

Is it unethical to perform any procedure that might be regarded as an experiment on a human being, or on what will eventually become a human being? Some people think so: Leon Kass cites this as a conclusive reason not to clone, claiming that in the absence of any consent-obtaining mechanism, such experimental procedures are intrinsically unethical.[16] But if we rule out experimental procedures in cases where we cannot obtain consent, the first caesarean sections would not have been permissible, nor the first IVF pregnancies.

It is also relevant here to consider the issue of prescribing drugs for babies (and children to a lesser degree). 65% of drugs prescribed for newborn babies have never been tested on this age group, because of obvious consent issues.[17] To some extent this means that the prescription of such drugs to babies is in itself experimental. This may not be an ideal situation, but it is by no means clear that it would be better for these babies if these drugs were simply refused them.

Cloning would certainly be an experimental procedure, initially, at any rate. However, this does not answer the question of whether cloned children would be harmed. They might be in some cases, but not necessarily in all. Kass's concern, of course, is not solely that cloning as an experimental procedure would harm the child. His claim implies that to experiment on human beings in this way is *in itself* morally wrong, whether or not anyone is actually harmed by it. However, I do not have room in my discussion to address these issues, and as I have

argued, even though such concerns may be morally valid, it is not necessarily the case that they should therefore be enforced by law.

6. Identity Problems

> The idea that one could make through somatic cell nuclear transfer a team of Michael Jordans, a physics department of Albert Einsteins, or an opera chorus of Pavarottis, is simply false.[18]

Many of the arguments against cloning have focused on the idea that clones would be harmed because they would lack the unique identity possessed by naturally begotten human beings. But, assuming that the "parent" of a cloned child would be an adult, the clone would necessarily grow up in a different temporal (and possibly geographical) environment. Therefore, even if they were *absolutely* identical genetically, there would still be some significant differences in terms of environmental influence. It has been argued that much of the formation of neural networks in the brain is not governed by genetic factors at all. As George Johnson describes:

> In the reigning metaphor, the genome, the coils of DNA that carry the genetic information, can be thought of as a computer directing the assembly of the embryo. Back-of-the-envelope calculations show how much information a human genome contains and how much information is required to specify the trillions of connections in a single brain. The conclusion is inescapable: the problem of wiring up a brain is so complex that it is beyond the power of the genomic computer.[19]

This makes us wonder how the brain *does* get wired up. Johnson's description is of a more or less random arrangement of neural tangles, which are acted upon by experience and learning, so that gradually pathways and connections are formed. Whatever the genetic make-up of the individual, the formation of these pathways and connections is neither predictable nor controllable by any technological means currently available to us.

Another point to be made with reference to the possible lack of unique identity in clones is that, as various commentators have pointed out, clones would be *less* similar to their genetic "parent" than identical twins are to each other.[20] Identical twins share both the temporal and uterine environment, and mitochondrial DNA from the mother's egg. A clone, on the other hand, would not be derived from the same egg as its "parent," and would therefore receive an entirely

different dose of mitochondrial DNA (I have focused here on the idea of adults cloning themselves; it might also be possible to clone embryos, in which case, the arguments would be slightly different in that the genome in question would not already have lived). Yet, as Richard Dawkins says: "Hell's foundations don't quiver every time a pair of identical twins is born."[21]

One might question how Dawkins knows this, perhaps! However, if we do not think that identical twins suffer from the lack of some kind of essential uniqueness of identity, it seems illogical to suppose that clones would do so, especially since they would be less similar in genetic and environmental terms to their "parent" than identical twins to each other (again it is necessary to observe here that the decision to clone yourself incorporates a degree of responsibility which is not present in identical twins; this is a morally relevant point, made by Habermas among others, but it concerns the agent's motives rather than necessary harm to the clone, and therefore while I recognize its validity, it does not detract from my argument).

But if a clone's life were not in fact predetermined by her genetic similarity to her "parent," she might still suffer as a result of a misguided conviction that was living a life that had already been lived. This line has been argued by a number of philosophers, and has been disputed by others.[22] However, while this mis-apprehension might indeed affect some clones, it seems plausible that not all would necessarily feel this way. Much would depend on the knowledge and assumptions of particular parents.

Therefore, again, it does not seem to be cloning itself which is intrinsically the cause of any harm. Moreover, many other misapprehensions might cause psychological suffering to children (for example, the belief that certain races, or sexes are inferior, or of less moral worth than others), yet we do not as a rule assume that children who might suffer from such beliefs should therefore not be born.

So sharing a similar or identical genome with another person may not *necessarily* impinge upon anyone's personal uniqueness, largely because personal identity is not reducible to genetic components. Perhaps here, though, it is relevant to consider another comment by Leon Kass:

> One is shortchanging the truth by emphasizing the additional importance of the intrauterine environment, rearing, and social setting: genotype obviously matters plenty. That, after all, is the only reason to clone, whether human beings or sheep.[23]

Kass has a good point here: it seems peculiar to argue in favor of cloning if part of your argument is that there is nothing particularly special or important about reproducing another individual's genome. However, it is not necessarily the case that all would-be cloners simply want to see themselves duplicated exactly: for some people it might be that they have no other means of producing genetically related children. Even in the case of people who *do* want to duplicate themselves, it is not clear that this constitutes harm to the child.

7. Psychological Burdens to the Child

Perhaps cloned children would suffer through confusion over family relationships.[24] Hitherto, two genetic parents have been the *sine qua non* of human reproduction. Anyone created by cloning would be treading new ground in terms of family relationships. Would the original cell donor be thought of as the child's father/mother? Or—more correctly, perhaps—as its sibling?

A cloned child might feel totally alone in the world, an artefact, a product of science and machinery rather than the offshoot of a family tree. Or she might feel prefigured, pre-empted in all respects. Perhaps clones would feel a hideous sense of being observed by a society watching with bated breath for evidence of abnormalities, or by the donors/parents, seeking signs of themselves in the children. Any exploration of how clones might feel is necessarily speculative. Yet surely if a clone knew of its origins it could not help but feel profoundly affected by the utter difference of its beginnings from those of other human beings.

Such feelings might become less intense if cloning became widely accepted in the way that IVF, for example, has. It is worth noting that while there were dire predictions about the psychological repercussions of ARTs in general, evidence of serious psychological suffering has not been forthcoming. Partly, of course, this is due to the complexity of performing studies on such subject groups, as well as the fact that in many cases, ARTs move ahead so quickly that children are not old enough to contribute effectively to studies of their psychological welfare. However, studies that have been carried out seem to indicate that children born into "non-traditional" family structures as a result of ARTs are not psychologically damaged; nor do family relationships involving such children appear dysfunctional, or abnormal.[25]

One of the problems in evaluating psychological suffering is that it is necessarily a subjective phenomenon. Events are dealt with in diverse ways depending on individual outlook and circumstances.

While the knowledge of being a clone might well constitute some degree of psychological pressure, the degree of psychological *harm* involved would surely depend on a multitude of factors.

8. How Much Harm?

A discussion of the harms involved in cloning must eventually turn to the question of how *much* harm a child would have to suffer in order to justify legal prohibitions on the procedures which would engender them. Perhaps we should attempt to answer this question by ascertaining what degree of suffering would entail that it would be better for a child never to be born. As Ruth Macklin has claimed:

> Evidence, not mere surmise, is required to conclude that the psychological burdens of knowing that one was cloned would be of such magnitude that they would outweigh the benefits of life itself.[26]

Many people have taken issue with this approach, finding it to be morally dubious. John Arras, for example, claims that

> The fact that unconceived or unborn children could end up having lives that were on balance worthwhile cannot function as an all-purpose excuse for imposing grievous pain, suffering and deprivation on them.[27]

However, this complaint seems to beg the question. It suggests that it is immoral to inflict pain and suffering on unconceived children. Yet, clearly, it is impossible to do so: unconceived children do not exist and thus cannot be harmed. To argue otherwise seems to lead into a logical trap whereby one is forced to posit the existence of an unconceived child in order to claim that it is immoral to harm it.

Derek Parfit articulated the idea that, if a child's existence is contingent upon a particular action (for example, its parents' having had sex on a particular date), then that child cannot be said to have been *harmed* by the performance of that action if its life will be on balance worth living.[28] For example, suppose a woman is being treated for syphilis. She could wait before becoming pregnant for her cure to be complete, but she does not. Her child is therefore born with congenital syphilis.

Parfit suggests that the child has not been harmed by its mother's choice, since if she had waited, a *different* child would have been born (free from syphilis). Applying Parfit's ideas to reproductive cloning, it

seems evident that, since the child would owe its very existence to cloning, it could not have been said to have been harmed by the technique, provided it had a minimally acceptable quality of life.

On Parfit's view, one could still say that a parent who clones herself acts immorally even though the child has not been harmed *per se*. This is because the parent could have chosen to conceive in better circumstances: in other words, a (different) child would have been born and would have had a better chance of leading a worthwhile life. The parent has chosen from two sets of circumstances, and has made the sub-optimal choice; it is here that the moral condemnation can be applied.

On this view, although the cloned child itself is not harmed (assuming it has a marginally worthwhile life), we might—perhaps—be able to argue that harms *do* ensue, which could make it justifiable to place a legal ban on cloning. However, the nature of these putative harms is difficult to articulate, and still more difficult to quantify. The implication is that there might have been a "better world outcome" had the woman made a different choice. But should the law really enforce that people choose the "best world option" in reproductive decisions? It might be that the "best world option" would be for *everyone* to refrain from having children, since it is often claimed that there are probably too many people in the world.

While reproduction is certainly a moral issue, we do not usually require of people that they forego the fulfillment of their reproductive desires for the sake of avoiding some kind of sub-optimal outcome. Moreover, the idea that there may be a simple binary choice between two options may be unrealistic in many situations. For some people who want to clone, it may be their only chance of having genetically related offspring. It is not necessarily a choice between a "natural" child or a clone. Even if a person is *not* infertile, she may still regard cloning as the only circumstance in which she would contemplate having a child, and again this seems to negate the validity of the "better option" argument.

9. Comparing Existence with Non-Existence

Finally, and perhaps most importantly, it seems to me that too much moral weight has been placed on the idea that there is a threshold which distinguishes between lives which are and are not worth living. If we suppose that such a threshold could prove useful, it is not enough just to assume its existence given the moral work that it is supposed to do: namely, to tell us what kind of conceptions are permissible and which reproductive technologies ought to be illegal.[29] Even if there

were accurate measures for suffering, it is not clear how this could satisfactorily be used to show us whether some lives should not be lived. The question can be stated as follows: is it better for a potential entity (a) not to exist, or (b) to exist and suffer horribly?

Suppose I give birth to a child who suffers horribly from a disease that causes constant pain. There is no hope for a cure; moreover, the child will never gain any of the faculties that we think valuable in human beings. Would it be better *for that child* that it should never have existed? Many people might think that the answer for this is obviously "yes." However, while I do not dispute that this *might* be the case, I cannot see how it can be proved, or even how one might argue the position. Is it better never to be born than to live in pain? Is it somehow better for the world that there should be less suffering in it …?

To my mind, these questions are simply unanswerable. It is not clear that we can speak of existence as being a harm or a benefit in any kind of meaningful way at all. To do so seems to result in some bizarre logical anomalies. Suppose a congenital condition causes 50% of those affected to suffer so badly that they wish they had never been born. Would we wrong such individuals by conceiving them? If we could answer this in the affirmative, we should then be able to ask whether we would then benefit the 50% who would find value in their lives by conceiving them? This seems to follow from the previous point.

But this is absurd: we cannot benefit people by causing them to exist. If we *could*, we might find that *not* to conceive the 50% described above might be construed as a harm to them. If not to conceive the preconceived can harm them, then we are all guilty of harming infinite hordes of potential people who might reasonably be expected to benefit from life. This seems clearly nonsensical.

This leaves us in a difficult position with regard to the morality and legality of conceiving children. According to what I have just suggested, one could conceive a child with appalling genetic disorders specifically to obtain a sadistic enjoyment from its suffering, yet it would still not be true to say that the child had been harmed by being brought into being. Intuitively, however, people do think that to conceive a child in such circumstances *must* be wrong. I whole-heartedly agree with this. However, its wrongness does not lie in the fact that it *harms the child*. I should add here that, while my argument may seem shocking in terms of suggesting that one cannot be harmed (or benefited) by being born, I am not suggesting that one cannot be harmed after birth (or even before, for example during gestation). If a child were born to gratify the whims of a sadist, it might well be necessary for the state to intervene to prevent harms being perpetrated on that child.

In fact, although many arguments against cloning rest on claims relating to the harm suffered by clones, it seems likely that for many people, their objections would not necessarily evaporate if cloning were shown to be safe. In effect, moral objections to cloning are properly centered around deontological concepts of human dignity or rights. My argument in this discussion is not that deontological or non-utilitarian concerns are irrelevant, but that they are not in themselves sufficient to warrant prohibitive legislation, at least in a legislative context which purports to be based on Mill's harm principle.

The Select Committee report that I cited earlier in my discussion was controversial in rooting its arguments in harm-based considerations at the expense of deontological reasoning. As I have suggested, this approach has some challenging implications in terms of legislation. The committee believed that safety issues are currently a sufficient justification for legislation against cloning, but that once these are resolved further arguments would be necessary to justify a continuing ban. Since I have suggested that harm to clones themselves is not a compelling argument, we may question whether cloning could be banned on grounds of harm to others?

One might argue with Patrick Devlin that there are social harms that would ensue from a failure to legislate against cloning. To allow cloning might erode social cohesion and lead to public outrage. Alternatively, there might be serious resource-based considerations which might justify a ban. However, these possibilities need careful evaluation, which cannot be undertaken here.

10. Conclusion

To conclude, then, I suggest that if

> (1) we accept the Select Committee's claim that: "the state has no right to intervene in the choices of people to procreate unless evidence of harm can be shown";[30]

and we agree that

> (2) one cannot harm (or benefit) an entity by bringing it into being;

then it follows that there are no *prima facie* grounds for the State to ban cloning *unless* there is evidence of harm to entities other than the cloned child; perhaps to society at large. I think it possible that an argument could be made based on such harms, but as yet little effort

seems to have been made to identify these harms or to incorporate them into legislation.

NOTES

1. House of Commons Science and Technology Committee, *Human Reproductive Technologies and the Law*, Fifth Report of Session 2004-05, Vol. 1 (2005), p. 35–36.
2. *Ibid*.
3. John Stuart Mill, *Utilitarianism and On Liberty*, ed. Mary Warnock (London: Fontana Press, 1962). Cited in *ibid*., p. 17.
4. House of Commons Science and Technology Committee, *Human Reproductive Technologies and the Law*, p. 49.
5. *Ibid*., p. 177.
6. John Stuart Mill, *Utilitarianism* (Indianapolis: Bobbs-Merrill Co., 1957).
7. National Bioethics Advisory Commission, *Report on Human Cloning* (1997), ch. 6.
8. John Harris, *On Cloning* (London: Routledge, 2004), p. 109.
9. Lee Silver's comments are discussed by Gina Kolata in her book *Clone: the Road to Dolly and the Path Ahead* (London: Penguin, 2002).
10. Allen J. Wilcox, Clarice R. Weinberg, John F. O'Connor, Donna Day Baird, John P. Schlatterer, Robert E. Canfield, E. Glenn Armstrong, and Bruce C. Nisula, "Incidence of Early Loss of Pregnancy," *The New England Journal of Medicine*, 319:4 (28 July 1988), pp. 189–194, at p. 191.
11. Daniel Brock, "Cloning Human Beings: An Assessment of the Ethical Issues Pro and Con," *Clones and Clones: Facts and Fantasies About Human Cloning*, eds. Martha Nussbaum and Cass Sunstein (New York: Norton, 1998), p. 158.
12. Christine Overall, Rayna Rapp, Laura Purdy, Andrea Dworkin and many others have argued that ARTs are not necessarily a boon to women.
13. Gregory Pence, *Who's Afraid of Human Cloning?* (Lanham, MD: Rowman and Littlefield Publishers Inc., 1998), p. 131.
14. Bengt Källén, Orvar Finnström, Karl Gösta Nygren, and Petra Otterblad Olausson, "In Vitro Fertilization (IVF) in Sweden: Risk for Congenital Malformations After Different IVF Methods," *Birth Defects Research. Part A, Clinical and Molecular Teratology*, 73:3 (March 2005), pp. 162–169.
15. National Bioethics Advisory Commission, *Report on Human Cloning*, ch. 6.
16. Leon Kass, *The Wisdom of Repugnance: The Ethics of Human Cloning* (Washington, DC: The AEI Press, 1998).
17. Simon Crompton, "Testing Times," *The Times* 21 August 2004.
18. National Bioethics Advisory Commission, *Report on Human Cloning*, ch. 2.
19. George Johnson, "Soul Searching," The Week in Review, *New York Times* 2 March 1997.
20. E.g., Richard Dawkins, Gregory Pence, Stephen Jay Gould.

21. Richard Dawkins, "What's Wrong with Cloning?" Nussbaum and Sunstein, *Clones and Clones*.

22. For the former see, for example, Søren Holm, "A Life in the Shadow: One Reason Why We Should not Clone Humans," *Cambridge Quarterly of Healthcare Ethics* 7:2 (Spring 1998), pp. 160–162; and Jürgen Habermas, *The Future of Human Nature* (Cambridge: Polity, 2003). For the latter see Matteo Mameli, "Reproductive Cloning, Genetic Engineering and the Autonomy of the Child: The Moral Agent and the Open Future," *Journal of Medical Ethics*, 33:2 (February 2007), pp. 87–93.

23. Kass, *The Wisdom of Repugnance*.

24. See, for example para 4.7 of the report of the Human Genetics Advisory Commission, *Cloning Issues in Reproduction, Science and Medicine*, December 1998. Available at http://www.advisorybodies.doh.gov.uk/hgac/papers/papers_d.htm (accessed 19 April 2007).

25. Emma Lycett, Ken Daniels, Ruth Curson, and Susan Golombok, "Offspring Created as a Result of Donor Insemination," *Fertility and Sterility*, 82:1 (July 2004), pp. 172–179. See also Emma Goodman, Fiona MacCallum, and Susan Golombok, "Follow-Up Studies on the Psychological Consequences of Successful IVF Treatment," *Biomedical Ethics*, 3:2 (1998), pp. 40–43.

26. Ruth Macklin, "Human Cloning: Don't Just Say No," *U.S. News & World Report*, 122:9 (10 March 1997), p. 64.

27. John Arras, "AIDS and Reproductive Decisions: Having Children in Fear and Trembling," *Milbank Quarterly*, 68:3 (1990), pp. 353–382.

28. Derek Parfit, *Reasons and Persons* (Oxford: Clarendon, 1984).

29. See, for example, Harris, *On Cloning*, p. 109.

30. See note 1, House of Commons Science and Technology Committee, *Human Reproductive Technologies and the Law*, p. 21.